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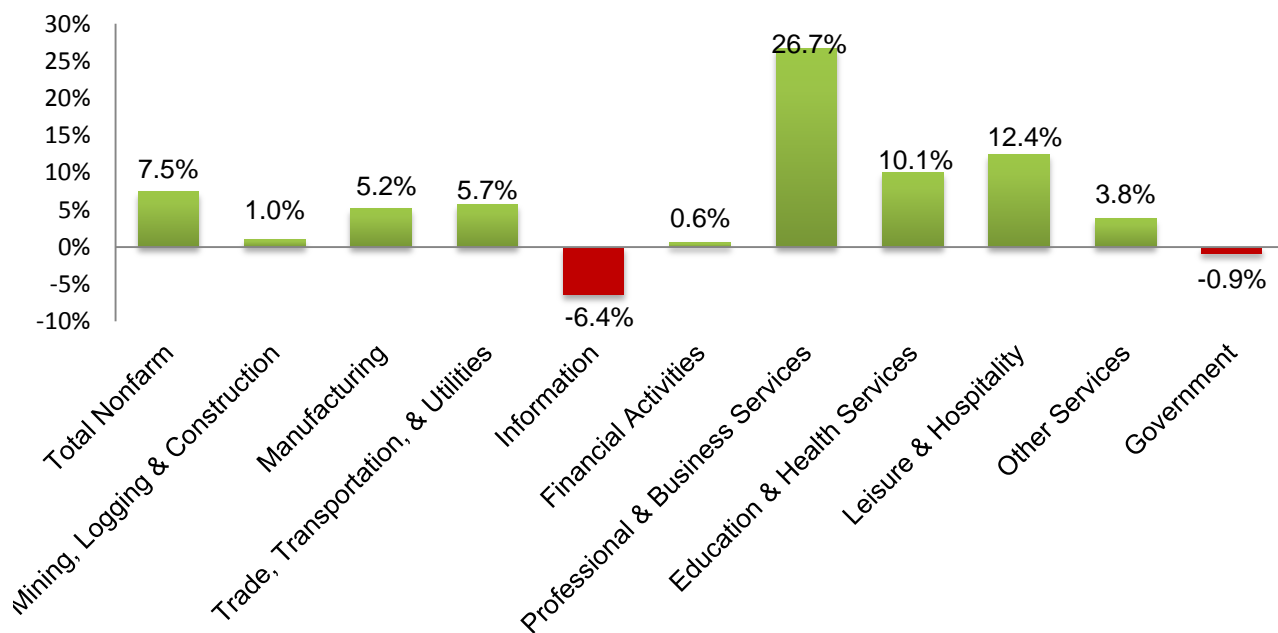
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# Tennessee Regional Economic Workforce Analysis: State, Region and LWDA Data

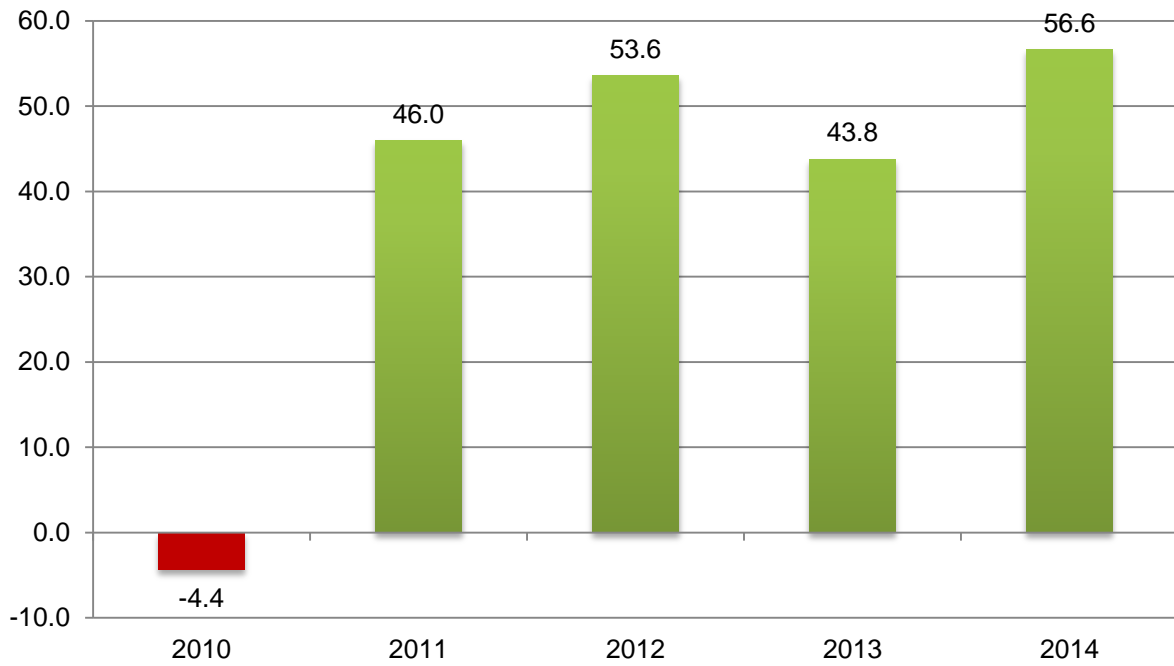
## Analysis of Tennessee Employment 2013 to 2014

Tennessee's average total nonfarm employment increased 2.1 percent from 2013 to 2014, adding 56,600 jobs. The industry sector with the largest total and percent increase was professional and business services, followed by leisure and hospitality. These two sectors combined to add 29,600 jobs. Since 2009, Tennessee has added 195,600 jobs, a 7.5 percent increase. Professional and business services gained 78,500 jobs during that time, more than double any other industry sector. Only information and government experienced declines since 2009.

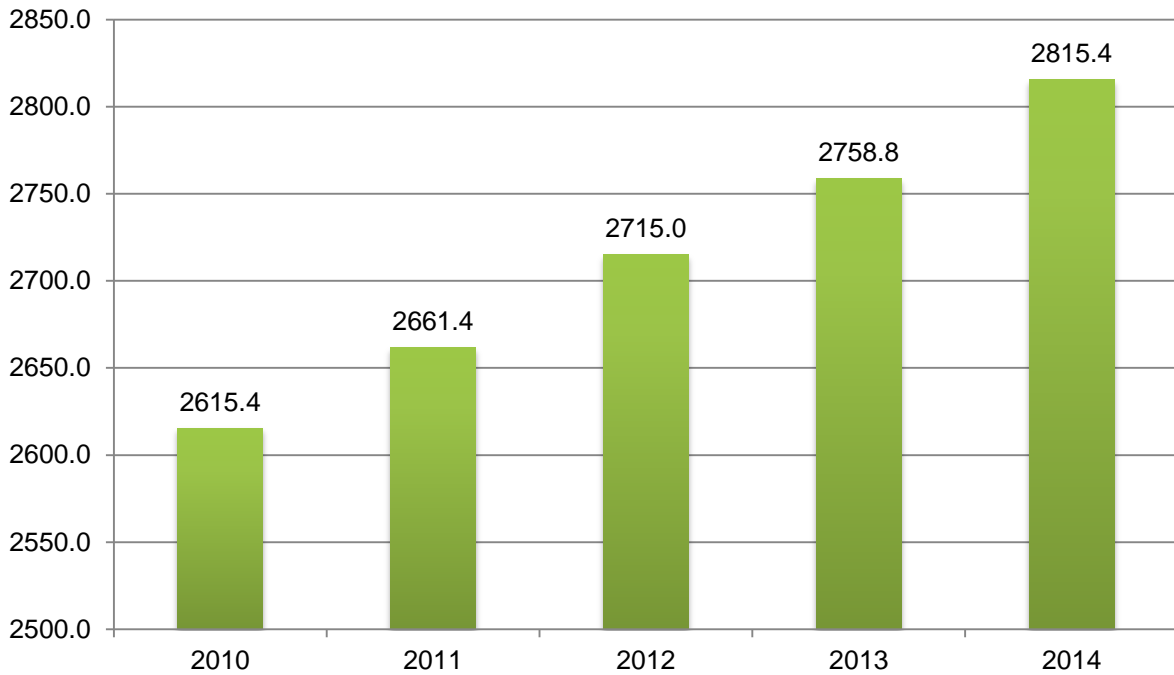
Industry Employment Change (thousands)	Change 2013-2014		Change 2009-2014	
Industry Sector	Total	Percent	Total	Percent
Total Nonfarm	56.6	2.10%	195.6	7.50%
Good Producing	10	2.30%	17.3	4.10%
Mining, Logging & Construction	3.1	2.80%	1.1	1.00%
Manufacturing	6.8	2.10%	16	5.20%
Private Service Providing	46.9	2.40%	182.1	10.30%
Trade, Transportation, & Utilities	9.5	1.60%	32.1	5.70%
Information	-0.2	-0.50%	-3	-6.40%
Financial Activities	3.3	2.40%	0.8	0.60%
Professional & Business Services	19.2	5.40%	78.5	26.70%
Education & Health Services	4.3	1.10%	36.9	10.10%
Leisure & Hospitality	10.4	3.60%	32.8	12.40%
Other Services	0.3	0.30%	3.9	3.80%
Government	-0.2	0.00%	-3.7	-0.90%



**Tennessee Annual Nonfarm Job Growth (thousands)**



**Tennessee Total Nonfarm (thousands)**



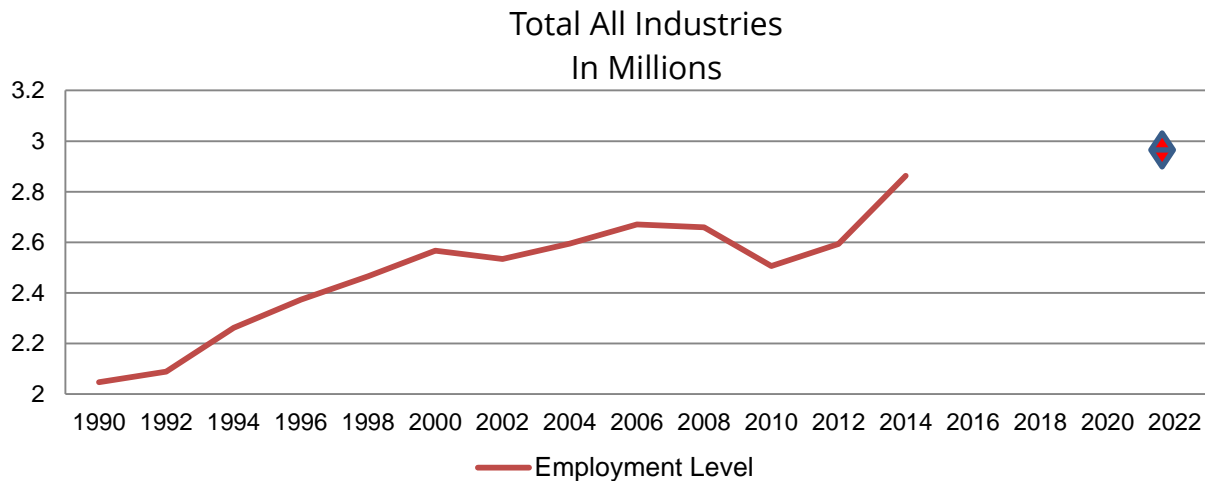
## Economic Analysis – Tennessee Employment Projections 2014-2022

Tennessee's total employment remains on track to exceed 3.3 million by 2022. Levels of employment continue to rise after the 2007-2009 recession that saw a steep decline in employment.

The services providing industry is expected to experience a favorable annual increase of 1.3 percent, with the professional and business services sector leading with a rate of 2.2 percent. In addition to professional services gains, other services (except government) and education and health services are expected to grow 1.9 and 1.7 percent respectively.

The goods producing industry is expected to increase by 0.60 percent. Construction continues to prosper with a healthy expected gain of 1.7 percent. However, natural resources and mining and manufacturing are expected to be among the slowest growing sectors with rates of 0.2 and 0.3 percent.

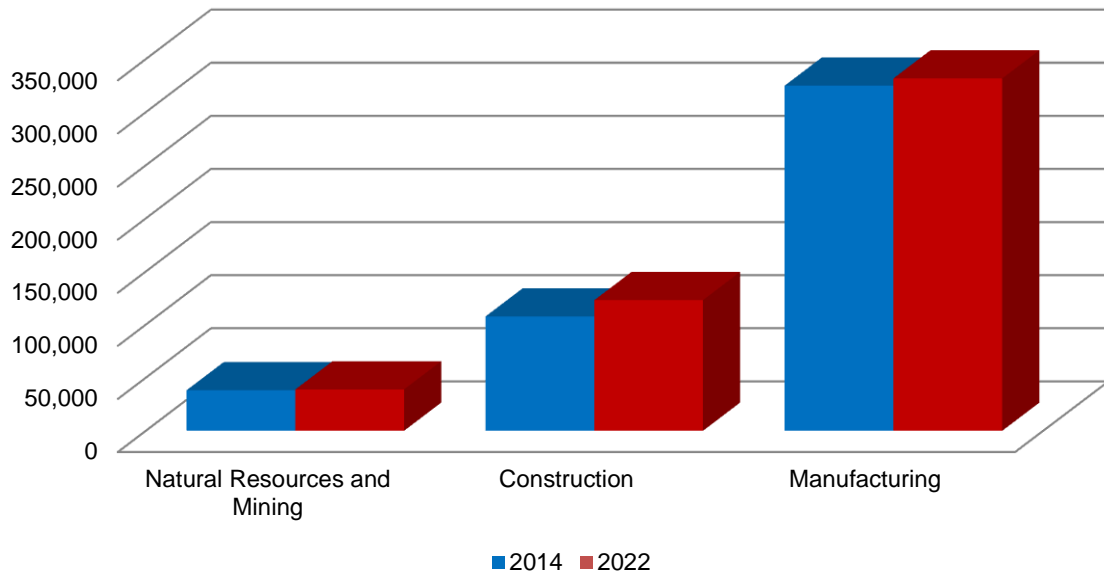
### Industry Employment Overview



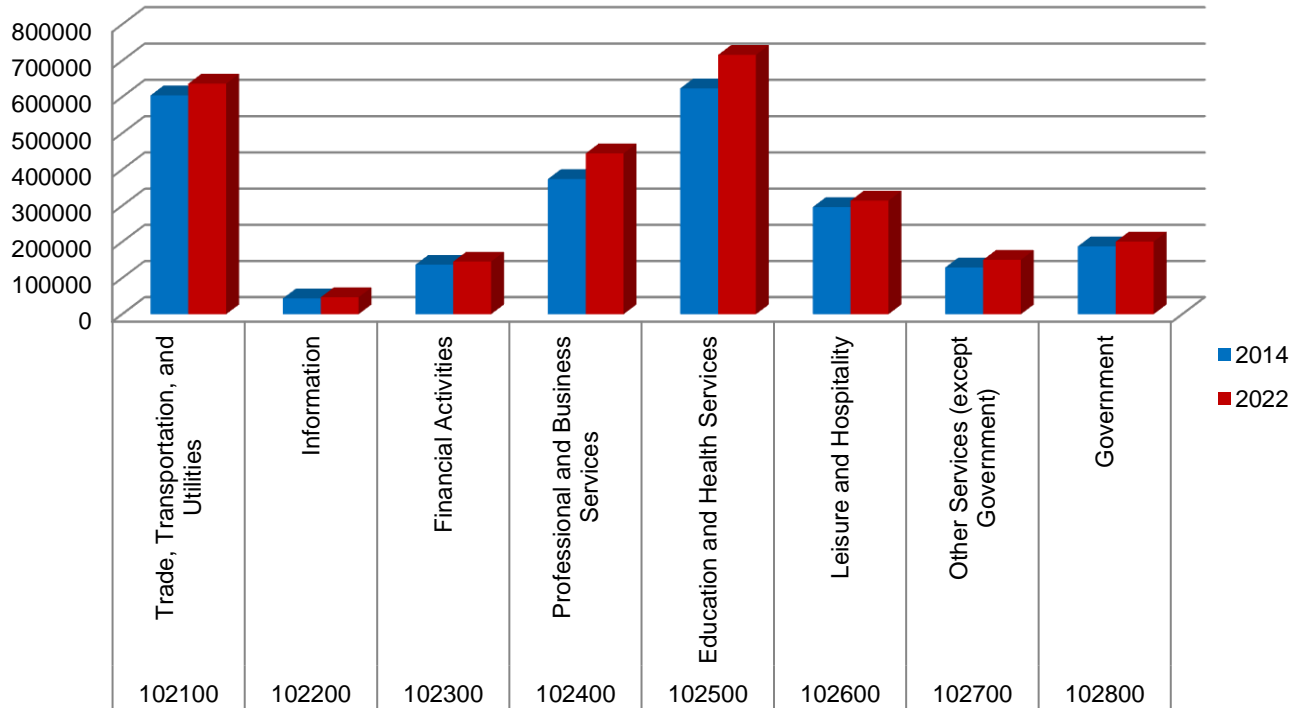
### Industry Projections

Title	2012	2014	2022	Change 2012- 2014	Change 2014- 2022	2014- 2022 Growth Rates
Total All Industries	2,949,450	3,051,320	3,336,400	101,870	285,080	9.3
Goods Producing	453,110	470,760	493,590	17,650	22,830	4.9
Natural Resources and Mining	34,820	38,220	38,920	3,410	700	1.8
Construction	104,800	107,680	122,980	2,880	15,300	14.2
Manufacturing	313,500	324,860	331,690	11,360	6,830	2.1
Services Providing	2,316,080	2,396,120	2,655,340	80,040	259,230	10.8
Trade, Transportation, and Utilities	587,270	604,350	636,630	17,080	32,280	5.3
Information	43,200	43,810	46,980	610	3,170	7.2
Financial Activities	133,810	136,920	145,570	3,110	8,650	6.3
Professional and Business Services	336,450	373,780	444,600	37,330	70,820	19
Education and Health Services	615,400	623,910	716,120	8,500	92,210	14.8
Leisure and Hospitality	277,050	296,410	314,100	19,360	17,690	6
Other Services (except Government)	138,040	129,330	150,530	-8,710	21,200	16.4
Government	184,850	187,610	200,810	2,760	13,200	7

Goods Producing Employment



Services Providing Employment



## Industry Growth and New Job Creation

Tennessee has experienced significant employment growth since the recovery from the recession. As listed in table 1, the state's expected major growth sectors include professional and business services (19 percent), other services except government (16.4), education and health services (14.8), and construction (14.2). Twenty industries in Tennessee are expected to add the most new jobs from 2014 to 2022.

### Tennessee Three Digit Industries Expected to Add the Most New Jobs 2014 to 2022

Industry Rank	NAICS Industry Code	Industry Title	Number of New Jobs	Percent Change 2014-2022
1	561000	Administrative and Support Services	38,370	18.4
2	621000	Ambulatory Health Care Services	33,690	23.8
3	611000	Educational Services	28,150	11.6
4	541000	Professional, Scientific, and Technical Services	21,750	18.1
5	813000	Religious, Grant making, Civic, Professional, and Similar Organizations	19,320	27.9
6	622000	Hospitals	14,630	11.6
7	336000	Transportation Equipment Manufacturing	13,760	21.6
8	722000	Food Services and Drinking Places	13,230	5.7
9	238000	Specialty Trade Contractors	12,610	18.7
10	624000	Social Assistance	11,110	23.1
11	551000	Management of Companies and Enterprises	8,440	22.2
12	923000	Local Government, Excluding Education and Hospitals	7,450	6.6
13	484000	Truck Transportation	6,390	11.3
14	446000	Health and Personal Care Stores	6,180	26.8
15	623000	Nursing and Residential Care Facilities	4,630	7.2
16	452000	General Merchandise Stores	4,620	6.5
17	522000	Credit Intermediation and Related Activities	4,010	7.6
18	333000	Machinery Manufacturing	3,950	15.5
19	524000	Insurance Carriers and Related Activities	3,710	9.2
20	425000	Wholesale Electronic Markets and Agents and Brokers	2,910	14.7

Source: Tennessee Department of Labor and Workforce Development, Labor Market Information Section. Tennessee Employment Projections, 2014 to 2022, State and LWDAs, unpublished. [jobs4tn.gov]

The 20 industries above are projected to create a total of 258,080 jobs, or 91 percent of all expected job creation. Just the top 10 industries should create 206,080 jobs, or 72 percent of the total. In the top ten are just two industries in the goods producing sector- transportation equipment manufacturing and construction sector specialty trade contractors. In the services providing sector, the most populous industry sector is professional and business services, including administrative and support services and professional, scientific, and technical services. The next largest sector is education and health services, including ambulatory health care and hospitals, educational services, and social assistance. The leisure and hospitality sector will create more than 13,000 food service jobs, and in the other services sector, religious, civic and professional organizations will add employment as well.

## **Job Creation and Workforce Characteristics in the East, Middle, and West Regions**

### **East Region Analysis**

Tennessee is divided into three regions. The West Region consists of the sum of LWDAs 11 to 13; the Middle Region of LWDAs 6 to 10; and the East Region LWDAs 1 to 5. The following tables provide information on industry employment for 2014 and projected employment for 2022 in the East Region and LWDAs, as well as important demographic and labor force characteristics that shape the region. Information comparing the detailed industries providing the most growth in each region and the associated fastest growing occupations in those industries can be found in a later section of the report.

Total employment is expected to grow about one percent per year, nearly at the pace of expected job growth for the state. Larger job creation sectors include professional and business services, education and health services, and in the goods producing sector, construction. Unemployment among the Local Workforce Development Areas (LWDAs) has generally decreased from 2010 to 2014. LWDA 3, Knoxville, has generally had the lowest unemployment rates, reducing from 7.4 to 5.5 percent annually by 2014. LWDA 5, with expansion in the auto manufacturing and related industries, in 2014 had the second lowest unemployment of 6.7 percent.

With regard to educational attainment, a plurality of 18 to 24 year olds in each region has some college or an associate's degree, with about 30,000 in each region not graduating from high school. At the state level, bachelor's degrees or higher are held by almost 1.1 million Tennesseans. The Middle Region has the highest percentages of the population 25 years and over graduating from high school and with bachelor's or higher degrees. Educational attainment for the East Region and the LWDAs is shown in the table following. Just above 17 percent of East residents are in poverty.

More than 40 percent of the fastest growing occupations in the East Region are expected to require high school degrees or the equivalent, and 22 percent expected to require bachelor's degrees. The current skills distribution in the region can be approximated by the occupational distribution of the population. Among the 22 occupational groups, the largest number of employees work in office and administrative occupations, sales and related, production, food preparation and service, and health care practitioners, technical, and support.

## East Regional Employment, 2014 to 2022

East Region					
Code	Title	2014 Employment	Projected 2022 Employment	Change	Percentage
000000	Total All Industries	1039630	1122220	82590	7.94%
101000	Goods Producing	174100	180760	6660	3.83%
101100	Natural Resources and Mining	3730	3200	-525	-14.21%
101200	Construction	38660	46710	8045	20.82%
101300	Manufacturing	131720	130860	-860	-0.65%
102000	Services Providing	808810	882270	73455	9.08%
102100	Trade, Transportation, and Utilities	194150	203950	9805	5.05%
102200	Information	12990	13670	675	5.23%
102300	Financial Activities	42990	45350	2365	5.49%
102400	Professional and Business Services	115810	139210	23405	20.21%
102500	Education and Health Services	219810	241850	22035	10.03%
102600	Leisure and Hospitality	114450	120730	6285	5.49%
102700	Other Services (except Government)	44650	55970	11320	25.35%
102800	Government	63980	61540	-2440	-3.81%

## East LWDA Employment, 2014 to 2022

Employment										
LWDA 1			LWDA 2		LWDA 3		LWDA 4		LWDA 5	
Title	2014	Projected 2022	2014	Projected 2022	2014	Projected 2022	2014	Projected 2022	2014	Projected 2022
Total All Industries	162160	166060	164020	170810	252640	284070	181360	194950	305050	331520
Goods Producing	29250	26770	37130	34650	21630	24940	44070	46960	57170	58870
Natural Resources and Mining	1980	670	7080	3630	950	1070	5510	6600	3160	2520
Construction	7680	8540	3760	5090	9480	11020	7670	9320	10070	12740
Manufacturing	19580	17550	26290	25940	11200	12860	30890	31030	43940	43610
Services Providing	123430	130460	116110	126850	216150	243070	125460	135830	229740	253550
Trade, Transportation, and Utilities	28010	27840	30150	31630	52320	55990	28410	30920	55340	57650
Information	2980	2740	820	920	4960	5600	1050	1050	3190	3360
Financial Activities	5990	6520	4830	4620	11700	12170	6290	6540	14180	15500
Professional and Business Services	13950	14690	9530	12090	36680	44890	22390	25830	33260	41720
Education and Health Services	39260	44140	28060	33330	59480	64710	33130	36250	59880	63420
Leisure and Hospitality	16010	15610	27210	28700	26650	29290	15550	16790	29030	30350
Other Services (except Government)	6580	9190	4800	6210	12510	18630	6850	6750	15900	22590
Government	10670	9730	10700	9360	11840	11790	11800	11700	18960	18970



## Unemployment Rates by Region

East LWDA Region					
Averages					
LWDA	Year	Labor Force	Employment	Unemployment	Rate
LWDA 1	2010	175,910	159,180	16,720	9.5
LWDA 2	2010	208,320	184,210	24,120	11.6
LWDA 3	2010	229,800	212,760	17,040	7.4
LWDA 4	2010	219,360	196,750	22,640	10.3
LWDA 5	2010	287,310	260,140	27,170	9.5
Total		1,120,700	1,013,040	107,690	9.6
LWDA 1	2011	177,860	162,440	15,430	8.7
LWDA 2	2011	208,810	186,320	22,490	10.8
LWDA 3	2011	233,710	217,630	16,080	6.9
LWDA 4	2011	221,360	200,100	21,260	9.6
LWDA 5	2011	292,030	266,530	25,520	8.7
Total		1,133,770	1,033,020	100,780	8.9
LWDA 1	2012	174,280	160,850	13,440	7.7
LWDA 2	2012	205,210	185,790	19,420	9.5
LWDA 3	2012	231,680	217,560	14,110	6.1
LWDA 4	2012	217,930	199,240	18,680	8.6
LWDA 5	2012	292,930	270,740	22,210	7.6
Total		1,122,030	1,034,180	87,860	7.8
LWDA 1	2013	170,470	157,160	13,310	7.8
LWDA 2	2013	202,000	183,350	18,660	9.2
LWDA 3	2013	228,130	213,790	14,340	6.3
LWDA 4	2013	213,540	195,260	18,300	8.6
LWDA 5	2013	289,910	267,440	22,450	7.7
Total		1,104,050	1,017,000	87,060	7.9
LWDA 1	2014	164,670	153,430	11,230	6.8
LWDA 2	2014	196,340	181,150	15,200	7.7
LWDA 3	2014	223,820	211,560	12,270	5.5
LWDA 4	2014	208,400	193,170	15,230	7.3
LWDA 5	2014	280,380	261,560	18,820	6.7
Total		1,073,610	1,000,870	72,750	6.8

## Educational Attainment

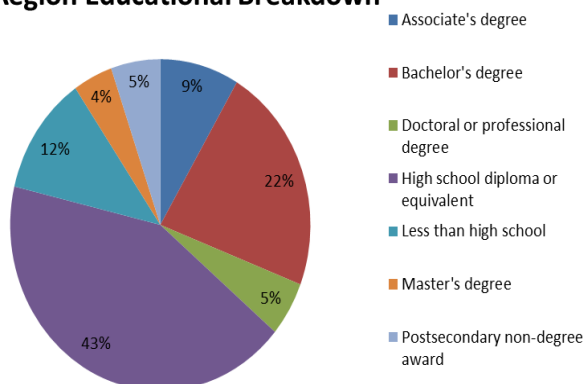
Educational Attainment State Overview					
Population 18 to 24 years					
Area	Total	Less than high school graduate	High school graduate (includes equivalency)	Some college or associate's degree	Bachelor's degree or higher
East	224,075	29,972	79,955	97,138	16,912
Middle	241,932	29,805	84,982	103,286	23,953
West	156,641	26,192	53,936	65,028	11,478
Tennessee	622,648	85,925	219,172	265,248	52,302
Total	622,648	13.80%	35.20%	42.60%	8.40%

Educational Attainment by Region								
Population 25 years and over								
Area	East	%	Middle	%	West	%	Tennessee	%
Total	1659195	100.00%	1648008	100.00%	1029040	100.00%	4336243	100.00%
Less than 9th grade	109553	6.60%	89797	5.45%	54488	5.30%	255838	5.90%
9-12th grade, no diploma	153312	9.24%	144349	8.76%	101744	9.89%	398934	9.20%
High school graduate (includes equivalency)	571748	34.46%	529156	32.11%	333550	32.41%	1435296	33.10%
Some college, no degree	342839	20.66%	337637	20.49%	230810	22.43%	910611	21.00%
Associate's	115378	6.95%	105200	6.38%	59751	5.81%	281856	6.50%
Bachelor's	229223	13.82%	289758	17.58%	158066	15.36%	676454	15.60%
Graduate or professional degree	137483	8.29%	152217	9.24%	91189	8.86%	381589	8.80%
High school graduate or higher	1396324	84.16%	1413874	85.79%	873357	84.87%	3681470	84.90%
Bachelor's or higher	366657	22.10%	441966	26.82%	249289	24.23%	1058043	24.40%

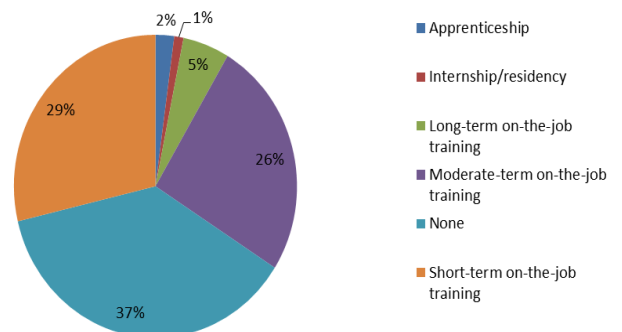
Educational Attainment by East Region					
Population 18 to 24 years					
Area	Total	Less than high school graduate	High school graduate (includes equivalency)	Some college or associate's degree	Bachelor's degree or higher
LWDA 1	35,368	3,955	12,049	16,114	3,251
LWDA 2	37,084	4,802	16,978	13,277	2,022
LWDA 3	53,108	5,629	14,021	27,404	6,001
LWDA 4	37,862	6,352	17,152	12,498	1,842
LWDA 5	60,653	9,234	19,756	27,845	3,796
Total	224,075	13.38%	35.68%	43.35%	7.55%

East										
Population 25 years and over										
Area	LWDA 1		LWDA 2		LWDA 3		LWDA 4		LWDA 5	
Total	265506	100.00%	315022	100.00%	292296	100.00%	348866	100.00%	437505	100.00%
Less than 9th grade	18056	6.80%	29230	9.28%	10230	3.50%	24523	7.03%	27514	6.29%
9th to 12th grade, no diploma	24793	9.34%	34306	10.89%	19292	6.60%	34585	9.91%	40337	9.22%
High school graduate (includes equivalency)	91794	34.57%	130339	41.37%	76582	26.20%	133235	38.19%	139798	31.95%
Some college, no degree	54522	20.54%	58497	18.57%	60213	20.60%	69432	19.90%	100175	22.90%
Associate's degree	16842	6.34%	18927	6.01%	25137	8.60%	22899	6.56%	31572	7.22%
Bachelor's degree	36685	13.82%	27983	8.88%	62259	21.30%	39758	11.40%	62538	14.29%
Graduate or professional degree	23012	8.67%	15787	5.01%	38583	13.20%	24487	7.02%	35614	8.14%
High school graduate or higher	222657	83.86%	251547	79.85%	262774	89.90%	289692	83.04%	369654	84.49%
Bachelor's degree or higher	59697	22.48%	43734	13.88%	100842	34.50%	64229	18.41%	98154	22.43%

**Fastest Growing Occupations for the East Region Educational Breakdown**



**Fastest Growing Occupations for the East Region Training Breakdown**



## Skills and Current Occupational Distribution

East Region								
2014 Employment								
Level	Job Title	East	%	LWDA 1	LWDA 2	LWDA 3	LWDA 4	LWDA 5
00-0000	Total, All Occupations	1039630	100.00%	162160	164020	252640	181360	305050
11-0000	Management Occupations	61460	5.91%	9830	11180	15250	13510	20330
13-0000	Business and Financial Operations Occupations	31920	3.07%	4830	3070	8110	5870	10560
15-0000	Computer and Mathematical Occupations	13830	1.33%	2100	1120	3840	2290	3960
17-0000	Architecture and Engineering Occupations	17240	1.66%	3100	1230	3170	5940	3960
19-0000	Life, Physical, and Social Science Occupations	6530	0.63%	890	430	1470	2390	1750
21-0000	Community and Social Service Occupations	11610	1.12%	2390	2370	4060	2940	5560
23-0000	Legal Occupations	4840	0.47%	670	480	1620	600	1490
25-0000	Education, Training, and Library Occupations	58140	5.59%	9530	9010	13180	9610	15490
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	12420	1.19%	2170	2230	3660	1440	4110
29-0000	Healthcare Practitioners and Technical Occupations	69390	6.67%	13120	7440	17820	10350	19370
31-0000	Healthcare Support Occupations	28360	2.73%	6450	3840	7760	4250	8730
33-0000	Protective Service Occupations	21000	2.02%	3480	3480	5270	2790	5080
35-0000	Food Preparation and Serving Related Occupations	94530	9.09%	14920	18510	23370	14950	24390
37-0000	Building and Grounds Cleaning and Maintenance Occupations	39760	3.82%	4770	7530	13480	5900	12000
39-0000	Personal Care and Service Occupations	41300	3.97%	4860	5200	10260	4080	8600
41-0000	Sales and Related Occupations	99280	9.55%	15320	17160	25330	14950	26460
43-0000	Office and Administrative Support Occupations	163390	15.72%	27550	21290	44320	26670	47260
45-0000	Farming, Fishing, and Forestry Occupations	1380	0.13%	1280	4030	780	3510	2100
47-0000	Construction and Extraction Occupations	36660	3.53%	6600	4600	8800	8900	10660
49-0000	Installation, Maintenance, and Repair Occupations	45410	4.37%	6910	6150	10110	7940	12150
51-0000	Production Occupations	98110	9.44%	12620	21210	11460	21410	34990
53-0000	Transportation and Material Moving Occupations	83080	7.99%	8770	12450	19530	11100	26070

## Poverty Rates

East			
Area	Poverty Estimate, All Ages	Population, All Ages	% of Population in Poverty
LWDA 1	70335	375,997	18.7
LWDA 2	91010	415,493	21.9
LWDA 3	77218	448,644	17.2
LWDA 4	83429	492,169	17.0
LWDA 5	105416	624,935	16.9
Total East Region	427408	2,393,238	17.8

## Middle Region Analysis

The following tables provide information on current and projected employment in the Middle Region, as well as important demographic and labor force characteristics for the region. Data comparing the detailed industries providing the most growth in each region and the associated fastest growing occupations in those industries can be found later in the report.

Total employment is projected to grow about twice as fast as in East Region, with rapid employment growth in professional and business services, education and health services, and construction, among other sectors.

Unemployment among the Local Workforce Development Areas (LWDAs) has generally decreased from 2010 to 2014. LWDA 8 initially had the lowest unemployment rate; however, LWDA 9 including Davidson and Rutherford counties had significant growth, resulting in that area having the lowest unemployment rate in 2014.

With regard to educational attainment, a slight plurality of 18 to 24 year olds in each region has some college or an associate's degree, with about 20,000 not graduating from high school. The largest number of those in poverty can be found in LWDAs 8 and 9.

More than 34 percent of the fastest growing occupations in the Middle Region are expected to require high school degrees or the equivalent, and 26 percent expected to require bachelor's degrees. The current skills distribution in the region can be approximated by the occupational distribution of the population. Among the 22 occupational groups, the largest number of employees works in office and administrative occupations, sales and related, production, and more than 100,000 in health care-related occupations

### Middle Region Employment, 2014 to 2022

Middle Region					
Code	Title	2014 Employment	Projected 2022 Employment	Change	Percentage
000000	Total All Industries	1164640	1349850	185220	15.9%
101000	Goods Producing	169960	185930	15970	9.4%
101100	Natural Resources and Mining	4530	3340	-1190	-26.3%
101200	Construction	42710	51530	8820	20.7%
101300	Manufacturing	122720	131070	8350	6.8%
102000	Services Providing	928930	1092820	163890	17.6%
102100	Trade, Transportation, and Utilities	218460	244230	25770	11.8%
102200	Information	22540	25560	3020	13.4%
102300	Financial Activities	59700	66360	6660	11.2%
102400	Professional and Business Services	147630	195170	47540	32.2%
102500	Education and Health Services	241970	292380	50410	20.8%
102600	Leisure and Hospitality	118790	128610	9820	8.3%
102700	Other Services (except Government)	44140	48430	4290	9.7%
102800	Government	75700	92090	16390	21.7%

## Middle Region LWDA Employment

Employment										
LWDA 6			LWDA 7		LWDA 8		LWDA 9		LWDA 10	
Title	2014	Projected 2022	2014	Projected 2022	2014	Projected 2022	2014	Projected 2022	2014	Projected 2022
Total All Industries	93520	98840	81170	90170	285320	338060	651790	769660	81310	84160
Goods Producing	28910	29660	19400	19930	44480	46860	74130	83970	19410	17420
Natural Resources and Mining	4540	4310	4890	4150	4610	2840	2170	2310	4230	1060
Construction	2440	3000	2670	3290	11950	14240	23600	28230	2060	2770
Manufacturing	21940	22360	11840	12490	27910	29780	48360	53430	13130	13580
Services Providing	58250	63470	56020	64880	222620	271720	538350	642240	56470	62790
Trade, Transportation, and Utilities	14550	14800	15070	18270	50570	55290	124680	141060	13690	14830
Information	750	760	860	1030	4640	4180	15450	18660	850	940
Financial Activities	2350	2550	2400	2870	17620	22120	34080	35310	3250	3520
Professional and Business Services	9420	11180	3950	4180	41210	53460	87260	119590	5790	6760
Education and Health Services	16890	19980	18450	21760	53810	70950	135640	159580	17180	20110
Leisure and Hospitality	5850	5670	6460	7190	29840	34310	70570	74980	6090	6480
Other Services (except Government)	2800	3580	2820	4110	11140	16150	27080	32220	2970	4610
Government	5640	4950	6020	5480	13790	15260	43590	60850	6660	5540

## Demographic and Labor Force Data; and Job Creation

### Unemployment

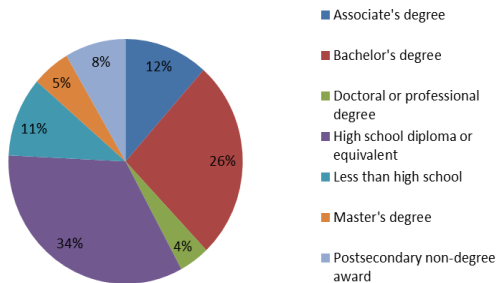
Middle LWDA Region					
Averages					
LWDA	Year	Labor Force	Employment	Unemployment	Rate
LWDA 6	2010	107,010	95,770	11,250	10.5
LWDA 7	2010	107,410	95,710	11,720	10.9
LWDA 8	2010	349,420	319,870	29,530	8.5
LWDA 9	2010	544,880	499,230	45,670	8.4
LWDA10	2010	115,940	101,480	14,470	12.5
<b>Total</b>		<b>1,224,660</b>	<b>1,112,060</b>	<b>112,640</b>	<b>9.2</b>
LWDA 6	2011	107,620	97,270	10,350	9.6
LWDA 7	2011	108,040	97,230	10,790	10
LWDA 8	2011	357,060	329,120	27,950	7.8
LWDA 9	2011	559,040	516,170	42,870	7.7
LWDA10	2011	115,500	103,280	12,220	10.6
<b>Total</b>		<b>1,247,260</b>	<b>1,143,070</b>	<b>104,180</b>	<b>8.4</b>
LWDA 6	2012	106,730	98,030	8,690	8.1
LWDA 7	2012	105,280	96,010	9,250	8.8
LWDA 8	2012	359,090	335,090	24,030	6.7
LWDA 9	2012	564,780	529,230	35,560	6.3
LWDA10	2012	113,650	103,650	9,990	8.8
<b>Total</b>		<b>1,249,530</b>	<b>1,162,010</b>	<b>87,520</b>	<b>7</b>
LWDA 6	2013	106,160	97,870	8,310	7.8
LWDA 7	2013	103,340	94,360	9,010	8.7
LWDA 8	2013	360,180	336,670	23,520	6.5
LWDA 9	2013	568,770	534,530	34,250	6
LWDA10	2013	113,070	103,540	9,530	8.4
<b>Total</b>		<b>1,251,520</b>	<b>1,166,970</b>	<b>84,620</b>	<b>6.8</b>
LWDA 6	2014	104,110	97,280	6,830	6.6
LWDA 7	2014	100,100	92,680	7,400	7.4
LWDA 8	2014	356,100	335,950	20,140	5.7
LWDA 9	2014	565,380	536,260	29,130	5.2
LWDA10	2014	111,510	103,790	7,720	6.9
<b>Total</b>		<b>1,237,200</b>	<b>1,165,960</b>	<b>71,220</b>	<b>5.8</b>

## Educational Attainment

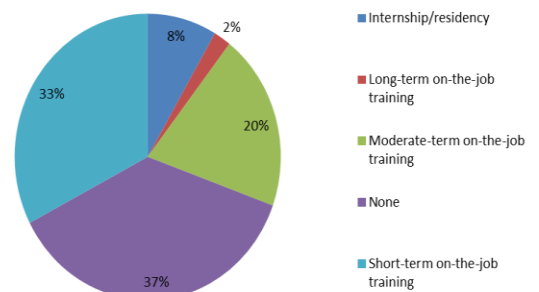
Educational Attainment by Middle Region					
Population 18 to 24 years					
Area	Total	Less than high school graduate	High school graduate (includes equivalency)	Some college or associate's degree	Bachelor's degree or higher
LWDA 6	19,896	3,309	8,472	7,287	833
LWDA 7	24,756	2,494	10,486	10,593	1,197
LWDA 8	63,805	8,410	23,919	25,981	5,490
LWDA 9	116,120	13,049	33,915	53,552	15,675
LWDA 10	17,355	2,544	8,190	5,872	758
Total	241,932	12.32%	35.13%	42.69%	9.90%

Middle										
Population 25 years and over										
Area	LWDA 6		LWDA 7		LWDA 8		LWDA 9		LWDA 10	
Total	158003	100.00%	170327	100.00%	480791	100.00%	692730	100.00%	146157	100.00%
Less than 9th grade	12709	8.04%	16753	9.84%	16871	3.51%	30581	4.41%	12883	8.81%
9th to 12th grade, no diploma	18682	11.82%	18899	11.10%	33436	6.95%	55871	8.07%	17460	11.95%
High school graduate (includes equivalency)	63365	40.10%	70976	41.67%	147008	30.58%	185725	26.81%	62082	42.48%
Some college, no degree	29782	18.85%	29791	17.49%	107463	22.35%	144057	20.80%	26544	18.16%
Associate's degree	8907	5.64%	7714	4.53%	33773	7.02%	46047	6.65%	8759	5.99%
Bachelor's degree	15539	9.83%	16540	9.71%	94907	19.74%	150704	21.76%	12068	8.26%
Graduate or professional degree	9043	5.72%	9607	5.64%	47160	9.81%	80007	11.55%	6400	4.38%
High school graduate or higher	126640	80.15%	134666	79.06%	430457	89.53%	606278	87.52%	115834	79.25%
Bachelor's degree or higher	24607	15.57%	26135	15.34%	142070	29.55%	230711	33.30%	18443	12.62%

**Fastest Growing Occupations for the Middle Region Educational Breakdown**



**Fastest Growing Occupations for the Middle Region Training Breakdown**



## Skills and Current Occupational Distribution

Middle Region								
2014 Employment								
Level	Job Title	Middle	%	LWDA 6	LWDA 7	LWDA 8	LWDA 9	LWDA 10
00-0000	Total, All Occupations	1164640	100%	93520	81170	285320	651790	81310
11-0000	Management Occupations	80680	6.93%	6850	6310	21690	43320	6190
13-0000	Business and Financial Operations Occupations	54180	4.65%	1850	1680	15320	28310	2210
15-0000	Computer and Mathematical Occupations	22900	1.97%	730	710	6420	12360	680
17-0000	Architecture and Engineering Occupations	16160	1.39%	1340	730	3440	8230	670
19-0000	Life, Physical, and Social Science Occupations	5580	0.48%	260	290	830	3440	260
21-0000	Community and Social Service Occupations	12500	1.07%	1360	1270	3860	10270	1700
23-0000	Legal Occupations	7310	0.63%	280	220	930	4240	270
25-0000	Education, Training, and Library Occupations	60710	5.21%	6250	5180	16800	30130	5060
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	21100	1.81%	710	630	3910	13860	590
29-0000	Healthcare Practitioners and Technical Occupations	70020	6.01%	4400	5100	14310	44580	5280
31-0000	Healthcare Support Occupations	31130	2.67%	2060	2200	8120	17040	2810
33-0000	Protective Service Occupations	22310	1.92%	1420	1480	3780	15040	1880
35-0000	Food Preparation and Serving Related Occupations	99390	8.53%	6290	7160	26620	55610	6550
37-0000	Building and Grounds Cleaning and Maintenance Occupations	33510	2.88%	2630	2370	8510	23170	2560
39-0000	Personal Care and Service Occupations	33520	2.88%	1670	2670	9510	20550	1740
41-0000	Sales and Related Occupations	116660	10.02%	8220	7100	30520	63830	7350
43-0000	Office and Administrative Support Occupations	192720	16.55%	11820	11310	48560	105360	11150
45-0000	Farming, Fishing, and Forestry Occupations	2620	0.22%	2970	3260	2840	1600	2880
47-0000	Construction and Extraction Occupations	39190	3.36%	2710	2930	10770	21560	2710
49-0000	Installation, Maintenance, and Repair Occupations	48230	4.14%	3950	3390	9930	27840	3430
51-0000	Production Occupations	100950	8.67%	18120	9360	21240	45890	9800
53-0000	Transportation and Material Moving Occupations	93290	8.01%	7630	5850	17400	55570	5560

## Poverty Rates

Middle Region			
Area	Poverty Estimate, All Ages	Population, All Ages	% of Population in Poverty
LWDA 6	41353	235,002	17.6
LWDA 7	49348	245,476	20.1
LWDA 8	84677	765,992	11.1
LWDA 9	183546	1,090,631	16.8
LWDA 10	43858	248,936	17.6
Total Middle Region	402782	2,586,037	15.6



## West Region Analysis

The following tables provide information on current and projected employment in the West Region, as well as the key demographic and labor force characteristics. Detailed information on industries providing the most growth in the East, Middle, and West and the associated fastest growing occupations in those industries can be found in the next section.

Total employment is expected to grow just over one percent per year, about at the pace of total employment growth in the state. Larger job creation sectors include education and health services; trade, transportation and utilities; and professional and business services.

Unemployment among the Local Workforce Development Areas (LWDAs) has generally decreased from 2010 to 2014. LWDA 13 has generally had the lowest unemployment rates, reducing from 9.8 to 7.8 percent annually by 2014.

With regard to educational attainment, a plurality of 18 to 24 year olds in each region has some college or an associate's degree, with about 25,000 not graduating from high school. At the state level, bachelor's degrees or higher are held by almost 1.1 million Tennesseans. Educational attainment for the West Region and the LWDAs is shown in the table following, with LWDA 13 having the largest percentage of bachelor's degrees. The largest number of those in poverty can be found in LWDAs 12 and 13.

More than 34 percent of the fastest growing occupations in the West Region are expected to require high school degrees or the equivalent, and 16 percent expected to require bachelor's degrees. The current skills distribution in the region can be approximated by the occupational distribution of the population. Among the 22 occupational groups, the largest number of employees works in office and administrative occupations, transportation and material moving, and sales and related occupations.

**Table: West Regional Employment, 2014 to 2022**

West Region					
Code	Title	2014 Employment	Projected 2022 Employment	Change	Percentage
000000	Total All Industries	728380	806190	77810	10.7%
101000	Goods Producing	93770	100580	6810	7.3%
101100	Natural Resources and Mining	1800	3000	1200	66.7%
101200	Construction	23590	27060	3470	14.7%
101300	Manufacturing	68380	70530	2150	3.1%
102000	Services Providing	596520	665340	68820	11.5%
102100	Trade, Transportation, and Utilities	170840	180520	9680	5.7%
102200	Information	6910	7760	850	12.3%
102300	Financial Activities	29680	32200	2520	8.5%
102400	Professional and Business Services	93070	114910	21840	23.5%
102500	Education and Health Services	157890	181880	23990	15.2%
102600	Leisure and Hospitality	61130	64730	3600	5.9%
102700	Other Services (except Government)	28360	34220	5860	20.7%
102800	Government	48660	49130	470	1.0%

**Table: West LWDA Employment, 2014 to 2022**

Employment						
LWDA 11			LWDA 12		LWDA 13	
Title	2014	Projected 2022	2014	Projected 2022	2014	Projected 2022
Total All Industries	105630	117150	105920	115880	530480	592930
Goods Producing	22600	25010	25380	28840	53250	54310
Natural Resources and Mining	2670	2560	4760	5290	930	1900
Construction	3500	4670	3520	4470	16570	17910
Manufacturing	16430	17770	17100	19080	35750	34500
Services Providing	77050	86180	73550	80110	448000	506890
Trade, Transportation, and Utilities	19080	19780	18960	18780	132920	142080
Information	820	900	850	960	5240	5900
Financial Activities	3090	3200	3670	3960	23010	25140
Professional and Business Services	7990	8700	5440	6440	79640	99770
Education and Health Services	27670	32030	23740	27140	106470	122720
Leisure and Hospitality	8170	8510	7390	7930	45600	48320
Other Services (except Government)	3850	5920	3980	5930	22340	29970
Government	6370	7140	9520	8980	32770	33010

## Unemployment

West LWDA Region						
LWDA	Month	Year	Labor Force	Employment	Unemployment	Rate
LWDA11	AVG /	2010	118,960	104,990	13,970	11.7
LWDA12	AVG /	2010	158,850	140,000	18,820	11.8
LWDA13	AVG /	2010	467,660	422,010	45,650	9.8
<b>Total</b>			<b>745,470</b>	<b>667,000</b>	<b>78,440</b>	<b>10.5</b>
LWDA11	AVG /	2011	120,100	107,490	12,620	10.5
LWDA12	AVG /	2011	158,080	140,050	18,020	11.4
LWDA13	AVG /	2011	470,960	426,090	44,880	9.5
<b>Total</b>			<b>749,140</b>	<b>673,630</b>	<b>75,520</b>	<b>10.1</b>
LWDA11	AVG /	2012	117,650	106,870	10,790	9.2
LWDA12	AVG /	2012	155,050	138,990	16,090	10.4
LWDA13	AVG /	2012	466,360	426,090	40,290	8.6
<b>Total</b>			<b>739,060</b>	<b>671,950</b>	<b>67,170</b>	<b>9.1</b>
LWDA11	AVG /	2013	114,790	103,940	10,870	9.5
LWDA12	AVG /	2013	151,620	135,790	15,820	10.4
LWDA13	AVG /	2013	459,610	418,600	41,000	8.9
<b>Total</b>			<b>726,020</b>	<b>658,330</b>	<b>67,690</b>	<b>9.3</b>
LWDA11	AVG /	2014	110,330	101,360	8,940	8.1
LWDA12	AVG /	2014	145,240	132,380	12,840	8.8
LWDA13	AVG /	2014	445,180	410,280	34,900	7.8
<b>Total</b>			<b>700,750</b>	<b>644,020</b>	<b>56,680</b>	<b>8.1</b>

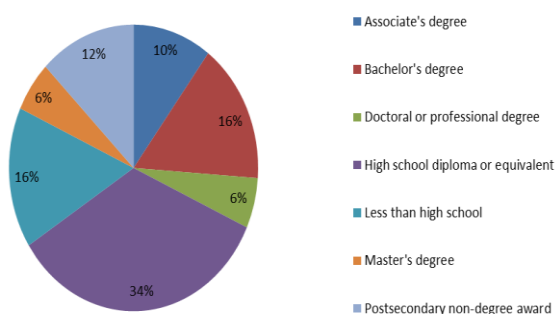
## Educational Attainment

Educational Attainment by West Region					
Population 18 to 24 years					
Area	Total	Less than high school graduate	High school graduate (includes equivalency)	Some college or associate's degree	Bachelor's degree or higher
LWDA 11	25,296	3,855	8,631	11,602	1,207
LWDA 12	31,947	4,152	12,963	13,301	1,526
LWDA 13	99,398	18,184	32,342	40,125	8,744
Total	156,641	16.72%	34.43%	41.51%	7.33%

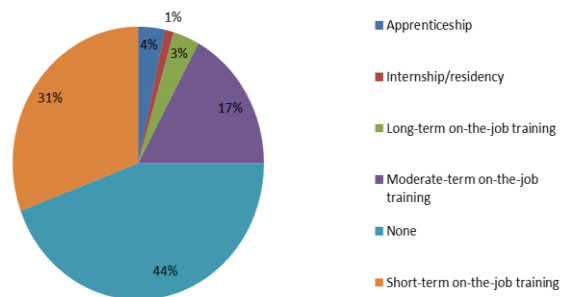
## Educational Attainment

West						
Population 25 years and over						
Area	LWDA 11		LWDA 12		LWDA 13	
Total	172993	100.00%	231197	100.00%	624850	100.00%
Less than 9th grade	10516	6.08%	15633	6.76%	28339	4.54%
9th to 12th grade, no diploma	20228	11.69%	26291	11.37%	55226	8.84%
High school graduate (includes equivalency)	67207	38.85%	94558	40.90%	171785	27.49%
Some college, no degree	35745	20.66%	47821	20.68%	147244	23.56%
Associate's degree	9568	5.53%	11580	5.01%	38603	6.18%
Bachelor's degree	19029	11.00%	22363	9.67%	116673	18.67%
Graduate or professional degree	10658	6.16%	12954	5.60%	67577	10.81%
High school graduate or higher	142247	82.23%	189227	81.85%	541883	86.72%
Bachelor's degree or higher	29752	17.20%	35288	15.26%	184250	29.49%

Fastest Growing Occupations for the West Region  
Educational Breakdown



Fastest Growing Occupations for the West  
Region Training Breakdown



## Skills and Current Occupational Distribution

West Region						
2014 Employment						
Level	Job Title	West	%	LWDA 11	LWDA 12	LWDA 13
00-0000	Total, All Occupations	728380		105630	105920	530480
11-0000	Management Occupations	43410	5.96%	6390	8050	33690
13-0000	Business and Financial Operations Occupations	24060	3.30%	2230	2270	20550
15-0000	Computer and Mathematical Occupations	9870	1.36%	590	600	9590
17-0000	Architecture and Engineering Occupations	8950	1.23%	850	800	7960
19-0000	Life, Physical, and Social Science Occupations	4190	0.58%	310	320	3230
21-0000	Community and Social Service Occupations	10570	1.45%	2480	1930	7900
23-0000	Legal Occupations	3560	0.49%	380	390	3090
25-0000	Education, Training, and Library Occupations	41790	5.74%	6350	8010	27150
27-0000	Arts, Design, Entertainment, Sports, and Media Occupations	8830	1.21%	930	950	6280
29-0000	Healthcare Practitioners and Technical Occupations	47710	6.55%	8290	6130	32500
31-0000	Healthcare Support Occupations	19180	2.63%	3710	3290	12000
33-0000	Protective Service Occupations	20830	2.86%	2410	2270	14630
35-0000	Food Preparation and Serving Related Occupations	54020	7.42%	8490	7630	38660
37-0000	Building and Grounds Cleaning and Maintenance Occupations	23920	3.28%	3160	3190	20480
39-0000	Personal Care and Service Occupations	21230	2.91%	2570	2490	17960
41-0000	Sales and Related Occupations	70120	9.63%	9380	9630	51270
43-0000	Office and Administrative Support Occupations	114380	15.70%	16010	14810	82740
45-0000	Farming, Fishing, and Forestry Occupations	1560	0.21%	1800	2890	860
47-0000	Construction and Extraction Occupations	23820	3.27%	3850	3600	16410
49-0000	Installation, Maintenance, and Repair Occupations	29290	4.02%	4190	4960	19760
51-0000	Production Occupations	57230	7.86%	12810	13730	32850
53-0000	Transportation and Material Moving Occupations	89880	12.34%	8450	8000	70910

## Poverty Rates

West			
Area	Poverty Estimate, All Ages	Population, All Ages	% of Population in Poverty
LWDA 11	52045	251,519	20.7
LWDA 12	65830	340,744	19.3
LWDA 13	217183	977,814	22.2
Total West Region	335058	1570077	21.34

## Disability Status of the Workforce

Area	Civilian, Non- institutional Pop. (18-64)	In the labor force						
		Total	Employed			Unemployed		
			Total	Disability	No Disability	Total	Disability	No Disability
LWDA 1	228,442	163,077	149,552	10,450	139,102	13,525	2,270	11,255
LWDA 2	271,527	191,267	171,246	13,027	158,219	20,021	3,566	16,455
LWDA 3	283,166	215,737	201,023	10,132	190,891	14,714	1,700	13,014
LWDA 4	286,606	199,128	179,053	12,085	166,968	20,075	3,009	17,066
LWDA 5	379,342	280,293	252,973	17,093	235,880	27,320	4,685	22,635
LWDA 6	138,043	97,807	88,531	6,875	81,656	9,276	1,628	7,648
LWDA 7	147,105	100,363	90,358	5,622	84,736	10,005	1,281	8,724
LWDA 8	444,176	339,145	313,639	17,193	296,446	25,506	2,991	22,515
LWDA 9	688,991	543,839	500,701	22,448	478,253	43,138	5,003	38,135
LWDA 10	145,912	107,066	96,164	6,606	89,558	10,902	1,566	9,336
LWDA 11	150,347	105,073	91,817	5,766	86,051	13,256	1,788	11,468
LWDA 12	200,063	143,356	126,545	8,346	118,199	16,811	2,380	14,431
LWDA 13	607,156	464,444	412,703	21,483	391,220	51,741	5,755	45,986
East	1,449,083	1,049,502	953,847	62,787	891,060	95,655	15,230	80,425
Middle	1,564,227	1,188,220	1,089,393	58,744	1,030,649	98,827	12,469	86,358
West	957,566	712,873	631,065	35,595	595,470	81,808	9,923	71,885
Tennessee	3,970,876	2,950,595	2,674,305	157,126	2,517,179	276,290	37,622	238,668

The table below provides information on the disability status of the population. Of those not in the labor force, about a third in each region have disability status.

## Disability Status of the Workforce

Area	Civilian, Non-institutional Pop. (18-64)	Not in labor force				
		Total	Disability	No Disability	Percentage	No Disability
LWDA 1	228,442	65365	26506	38859	40.60%	59.40%
LWDA 2	271,527	80260	35339	44921	44.00%	56.00%
LWDA 3	283,166	67429	18885	48544	28.00%	72.00%
LWDA 4	286,606	87478	33978	53500	38.80%	61.20%
LWDA 5	379,342	99049	36455	62594	36.80%	63.20%
LWDA 6	138,043	40236	15307	24929	38.00%	62.00%
LWDA 7	147,105	46742	17575	29167	37.60%	62.40%
LWDA 8	444,176	105031	28325	76706	27.00%	73.00%
LWDA 9	688,991	145152	38331	106821	26.40%	73.60%
LWDA 10	145,912	38846	14919	23927	38.40%	61.60%
LWDA 11	150,347	45274	16590	28684	36.60%	63.40%
LWDA 12	200,063	56707	22314	34393	39.30%	60.70%
LWDA 13	607,156	142712	42965	99747	30.10%	69.90%
East	1,449,083	399581	151163	248418	37.80%	62.20%
Middle	1,564,227	376007	114457	261550	30.40%	69.60%
West	957,566	244693	81869	162824	33.50%	66.50%
Tennessee	3,970,876	1020281	347489	672792	34.10%	65.90%

## Detailed Industry and Occupational Analysis

The following pages identify the three digit North American Industry Classification System (NAICS code) industries expected to create the most jobs in the state and its three regions between now and 2022. The first table lists the top 10 industries expected to create the most new jobs in the state. The next three tables list the top 10 job-creating industries in the East, Middle, and West Regions and the average wages of the industries in each region.

Significant differences can be seen among the top industries in the regions. Comparing the rankings for industries expected to create the most new jobs in each region to the state, the regions together are most aligned with the state on industries ranked 1, 2, 3, and 4. The top ranked industry in terms of creating the most new jobs is administrative and support services, which includes temporary help services. Other highly-ranked services include ambulatory health care, educational services, and professional, scientific, and technical services (ranking second in the East).

In the Middle and East Regions, other highly ranked industries include transportation equipment manufacturing, food services, and specialty trade contractors in the construction sector. Other industries in the top 10 for job creation in all regions include management of companies and enterprises.

The highest average weekly wages in all regions are in the industry of management of companies and enterprises, and in the East and Middle, the lowest are in the food service industries. Other high average wage industries in all regions include professional, scientific, and technical services, ambulatory health care services, and in the Middle Region, transportation equipment manufacturing.

The West Region differs in that job creation by hospitals is expected to be its fourth largest source of new jobs. Also ranking high are religious organizations and non-profits, social assistance, and warehousing and storage. The West also has a manufacturing industry ranked in its top 10 - plastics and rubber products, which creates output used by the transportation equipment manufacturing industry, among others. The industry composition of each region is a basic determinant of the jobs which will be available, as shown in the next section.

### Tennessee and Regions Three Digit Industries Expected to Add the Most New Jobs: 2014 to 2022

State

TN Number of New Jobs	State Industry Ranking, Most New Jobs	NAICS Industry Code	Industry Title
38,370	1	561000	Administrative and Support Services
33,690	2	621000	Ambulatory Health Care Services
28,150	3	611000	Educational Services
21,750	4	541000	Professional, Scientific, and Technical Services
19,320	5	813000	Religious, Grantmaking, Civic, Professional, and Similar Organizations
14,630	6	622000	Hospitals
13,760	7	336000	Transportation Equipment Manufacturing
13,230	8	722000	Food Services and Drinking Places
12,610	9	238000	Specialty Trade Contractors
11,110	10	624000	Social Assistance

### East

NAICS Industry Code	Industry Title	East Region Industry Ranking	East Ave. Wages
561000	Administrative and Support Services	1	\$31,514
541000	Professional, Scientific, and Technical Services	2	\$69,015
813000	Religious, Grantmaking, Civic, Professional, and Similar Organizations	3	\$24,862
621000	Ambulatory Health Care Services	4	\$60,844
238000	Specialty Trade Contractors	5	\$41,378
336000	Transportation Equipment Manufacturing	6	\$50,768
611000	Educational Services	7	\$37,910
722000	Food Services and Drinking Places	8	\$15,057
551000	Management of Companies and Enterprises	9	\$81,214
484000	Truck Transportation	10	\$50,026

### Middle

NAICS Industry Code	Industry Title	Middle Region Industry Ranking	Middle Ave. Wages
561000	Administrative and Support Services	1	\$30,530
611000	Educational Services	2	\$39,822
621000	Ambulatory Health Care Services	3	\$59,054
541000	Professional, Scientific, and Technical Services	4	\$76,563
336000	Transportation Equipment Manufacturing	5	\$60,155
722000	Food Services and Drinking Places	6	\$15,975
238000	Specialty Trade Contractors	7	\$46,930
551000	Management of Companies and Enterprises	8	\$100,116
923000	Local Government, Excluding Education and Hospitals	9	\$45,015
622000	Hospitals	10	\$59,211

### West

NAICS Industry Code	Industry Title	West Region Industry Ranking	West Ave. Wages
561000	Administrative and Support Services	1	\$31,852
621000	Ambulatory Health Care Services	2	\$59,863
611000	Educational Services	3	\$41,537
622000	Hospitals	4	\$54,584
541000	Professional, Scientific, and Technical Services	5	\$60,347
813000	Religious, Grantmaking, Civic, Professional, and Similar Organizations	6	\$42,157
493000	Warehousing and Storage	7	\$44,475
551000	Management of Companies and Enterprises	8	\$107,282
624000	Social Assistance	9	\$21,009
326000	Plastics and Rubber Products Manufacturing	10	\$49,816

## Industries Creating the Most New Jobs and Demand Occupations East, Middle, and West Regions

Following this table are sections on job creation for each of the regions. The first table in each region , “Industries Creating the Most New Jobs and Demand Occupations,” lists the top 10 industries expected to create the most new jobs in the region (as ranked in the preceding tables) and within each industry, the top fastest growing occupations in demand. Occupations may not be considered in demand and may not appear on the list if data show there are more than one and a half times as many training completers in the region as the number of expected annual openings. The occupations are listed with their expected employment and annual growth rate in the industry, median annual wage, and usual required education level.

Following each regional New Jobs table is a Regional Gap analysis. Each of the occupations in the “Industries Creating the Most New Jobs and Demand Occupations” tables has been assigned to a program of study. The annual average number of openings for the occupations in each program of study across all industries is considered the occupational demand for the program of study. Also assigned to the program of study are training completers who may be able to fill jobs in those occupations. This is considered supply. For the gap analysis, the total supply of completers in the program of study is subtracted from the total number of openings. The Regional Gap table is then sorted to show the greatest gap between demand and supply.

If the gap is positive (more demand than supply), more **training completers may be needed**. For example, note that in the Industries Creating the Most New Jobs and Demand Occupations – East Region table below, Customer Service Representative is a fast-growing demand occupation with employment in the Administrative and Support Services Industry, usually requiring a high school education and with median wage in the East Region of \$26,590. Viewing the Regional Gap Analysis for the East Region, Customer Services Representative is listed in the broad program of study Communications Development, which has a gap of more than 1900 employees between the number of program completers and the number of annual average openings. The next table, Regional Job Openings for the East, shows a gap in job applicants as well for November 2015: there were 158 internal job openings for Customer Service Representative on jobs4tn.gov, and only 94 applicants. This is another indication the job may be in demand. Following each of the gap analysis tables is a table of related licenses and employer-requested certifications.

The final section of the report has information for Tennessee on the most critical knowledge and skills needed for expanding jobs in Tennessee.

### East Region Industries Creating the Most New Jobs and Job Gap Analysis

The table below lists the top 10 industries in the East Region expected to create the most new jobs and the fastest-growing demand occupations within these industries. By looking at the fastest-growing occupations in these industries, some emerging occupations will be identified. The usual education levels of the occupations and their median wages are listed in the last two columns of the table.

The second-largest industry in the East expected to create the most new jobs is the Professional, Scientific, and Technical industry. Several of the fast-growing occupations in that industry with median pay above the state median and requiring less than a bachelor’s degree include paralegals, veterinary



technologists, sales representatives for services, customer service representatives, hazardous materials removal workers, and computer, ATM, and office machine repair personnel.

In the nonprofit sector, faster growing jobs include web developers and substance abuse counselors. Jobs for emergency medical technicians and other specialized diagnostic technicians are growing at a fast pace in ambulatory health care.

Openings for Brickmasons and construction equipment operators are expected to grow more quickly in the specialty trade contractors industry. Jobs for mechanical engineering technicians, industrial machinery and machinery maintenance workers, assemblers, machinists, and computer-controlled machine tool operators will be more prominent as transportation equipment manufacturing continues its growth.

### Industries Creating the Most New Jobs and Demand Occupations East Region

Rank	Industry Code	Industry Title	Job Code	Job Title	2014 Employment	Projected 2022 Employment	Annual Average Growth	Median Wage	Educ Level
1	561000	Administrative and Support Services	131162	Market Research Analysts & Marketing Specialists	60	80	3.8	53284	BA
1	561000	Administrative and Support Services	151121	Computer Systems Analysts	140	180	3	81845	BA
1	561000	Administrative and Support Services	292032	Diagnostic Medical Sonographers	60	80	3.5	58879	AS
1	561000	Administrative and Support Services	332011	Firefighters	40	50	3.9	33489	PS
1	561000	Administrative and Support Services	414012	Sales Representatives, Wholesale and Manufacturing	60	80	3.6	47345	HS
1	561000	Administrative and Support Services	434051	Customer Service Representatives	4860	6210	3.1	26590	HS
1	561000	Administrative and Support Services	435032	Dispatchers, Except Police, Fire, and Ambulance	40	60	3.3	33678	HS
1	561000	Administrative and Support Services	491011	First-Line Supervisors of Mechanics, Installers, and Repairers	60	80	4.2	54390	HS
1	561000	Administrative and Support Services	492098	Security and Fire Alarm Systems Installers	290	420	4.8	39010	HS
1	561000	Administrative and Support Services	499094	Locksmiths and Safe Repairers	90	130	4.7	29444	HS
2	541000	Professional, Scientific, and Technical Services	131052	Cost Estimators	110	160	155	55829	BA
2	541000	Professional, Scientific, and Technical Services	131111	Management Analysts	520	730	4.4	75572	BA
2	541000	Professional, Scientific, and Technical Services	131162	Market Research Analysts & Marketing Specialists	220	320	4.9	46556	BA
2	541000	Professional, Scientific, and Technical Services	132051	Financial Analysts	70	100	4.6	70002	BA
2	541000	Professional, Scientific, and Technical Services	152031	Operations Research Analysts	100	140	4.7	57476	BA
2	541000	Professional, Scientific, and Technical Services	231011	Lawyers	1480	2100	4.5	94968	PhD
2	541000	Professional, Scientific, and Technical Services	232011	Paralegals and Legal Assistants	1000	1520	5.3	44735	AS
2	541000	Professional, Scientific, and Technical Services	232093	Title Examiners, Abstractors, and Searchers	100	150	4.4	37386	HS
2	541000	Professional, Scientific, and Technical Services	232099	Legal Support Workers, All Other	60	90	4.4	47726	HS
2	541000	Professional, Scientific, and Technical Services	273091	Interpreters and Translators	100	170	7.5	35358	BA
2	541000	Professional, Scientific, and Technical Services	292056	Veterinary Technologists and Technicians	690	1010	4.8	28913	AS
2	541000	Professional, Scientific, and Technical Services	413099	Sales Representatives, Services, All Other	500	730	5	36854	HS

2	541000	Professional, Scientific, and Technical Services	434051	Customer Service Representatives	560	780	4.3	26590	HS
2	541000	Professional, Scientific, and Technical Services	474041	Hazardous Materials Removal Workers	50	70	5.9	56057	HS
2	541000	Professional, Scientific, and Technical Services	475031	Explosives Workers, Ordnance Handling Experts, and	50	80	5.4	58592	HS
2	541000	Professional, Scientific, and Technical Services	492011	Computer, Automated Teller, and Office Machine Rep	110	180	6.3	31961	SC
3	813000	Religious, Grantmaking, Civic, Professional,	113031	Financial Managers	130	180	4.2	80035	BA
3	813000	Religious, Grantmaking, Civic, Professional,	119151	Social and Community Service Managers	160	230	4.4	50423	BA
3	813000	Religious, Grantmaking, Civic, Professional,	131121	Meeting, Convention, and Event Planners	90	150	6.5	35810	BA
3	813000	Religious, Grantmaking, Civic, Professional,	131131	Fundraisers	200	280	4.5	38013	BA
3	813000	Religious, Grantmaking, Civic, Professional,	131162	Market Research Analysts & Marketing Specialists	70	110	5.4	46556	BA
3	813000	Religious, Grantmaking, Civic, Professional,	151134	Web Developers	70	90	4.2	51014	AS
3	813000	Religious, Grantmaking, Civic, Professional,	211011	Substance Abuse and Behavioral Disorder Counselors	30	70	10.2	33825	HS
3	813000	Religious, Grantmaking, Civic, Professional,	211021	Child, Family, and School Social Workers	150	210	4.2	40943	BA
3	813000	Religious, Grantmaking, Civic, Professional,	211093	Social and Human Service Assistants	50	70	5.1	26675	HS
3	813000	Religious, Grantmaking, Civic, Professional,	352012	Cooks, Institution and Cafeteria	60	80	4.2	19767	LHS
3	813000	Religious, Grantmaking, Civic, Professional,	392021	Nonfarm Animal Caretakers	40	80	9.1	19099	LHS
3	813000	Religious, Grantmaking, Civic, Professional,	412031	Retail Salespersons	60	100	7.9	20285	LHS
3	813000	Religious, Grantmaking, Civic, Professional,	491011	First-Line Supervisors of Mechanics, Installers, a	80	110	4.4	54390	HS
3	813000	Religious, Grantmaking, Civic, Professional,	499043	Maintenance Workers, Machinery	60	80	4.9	46111	HS
4	621000	Ambulatory Health Care Services	131131	Fundraisers	30	40	3	38013	BA
4	621000	Ambulatory Health Care Services	131151	Training and Development Specialists	60	80	3	55257	BA
4	621000	Ambulatory Health Care Services	211011	Substance Abuse and Behavioral Disorder Counselors	190	250	3.3	33825	HS
4	621000	Ambulatory Health Care Services	211022	Healthcare Social Workers	280	370	3.2	43151	MA
4	621000	Ambulatory Health Care Services	211029	Social Workers, All Other	40	60	3.3	38837	BA
4	621000	Ambulatory Health Care Services	292031	Cardiovascular Technologists and Technicians	60	70	3.1	49968	AS
4	621000	Ambulatory Health Care Services	292032	Diagnostic Medical Sonographers	250	320	3.5	58879	AS
4	621000	Ambulatory Health Care Services	292041	Emergency Medical Technicians and Paramedics	1190	1580	3.6	27952	PS
4	621000	Ambulatory Health Care Services	292055	Surgical Technologists	200	260	3.2	36752	PS
4	621000	Ambulatory Health Care Services	311011	Home Health Aides	360	470	3.4	18568	LHS

4	621000	Ambulatory Health Care Services	311014	Nursing Aides, Orderlies, and Attendants	1210	1530	3	22370	PS
4	621000	Ambulatory Health Care Services	332011	Firefighters	180	240	3.6	33489	PS
4	621000	Ambulatory Health Care Services	399021	Personal Care Aides	900	1180	3.3	18864	LHS
5	238000	Specialty Trade Contractors	373012	Landscaping and Groundskeeping Workers	60	90	5.2	23102	LHS
5	238000	Specialty Trade Contractors	472021	Brickmasons and Blockmasons	290	450	5.5	43569	HS
5	238000	Specialty Trade Contractors	472051	Cement Masons and Concrete Finishers	400	570	4.5	32416	LHS
5	238000	Specialty Trade Contractors	472071	Paving, Surfacing, and Tamping Equipment Operators	70	90	4.2	30300	HS
5	238000	Specialty Trade Contractors	472073	Operating Engineers and Other Construction Equipment	450	630	4.3	35258	HS
5	238000	Specialty Trade Contractors	472132	Insulation Workers, Mechanical	110	160	4.9	34337	HS
5	238000	Specialty Trade Contractors	472151	Pipelayers	120	170	4.3	34258	LHS
5	238000	Specialty Trade Contractors	472171	Reinforcing Iron and Rebar Workers	40	50	4.3	35463	HS
5	238000	Specialty Trade Contractors	473011	Helpers--Brickmasons, Blockmasons, Stonemasons, and	260	390	5.2	24980	LHS
5	238000	Specialty Trade Contractors	473013	Helpers--Electricians	690	940	3.9	27384	HS
5	238000	Specialty Trade Contractors	474031	Fence Erectors	30	50	4.8	N/A	HS
5	238000	Specialty Trade Contractors	475021	Earth Drillers, Except Oil and Gas	40	50	4.5	42410	HS
5	238000	Specialty Trade Contractors	493042	Mobile Heavy Equipment Mechanics, Except Engines	60	80	4.3	38945	HS
5	238000	Specialty Trade Contractors	499045	Refractory Materials Repairers, Except Brickmasons	30	50	6.4	N/A	HS
5	238000	Specialty Trade Contractors	512041	Structural Metal Fabricators and Fitters	60	80	4	33306	HS
5	238000	Specialty Trade Contractors	533032	Heavy and Tractor-Trailer Truck Drivers	350	490	4.2	38822	PS
5	238000	Specialty Trade Contractors	537021	Crane and Tower Operators	40	50	4.1	38333	HS
5	238000	Specialty Trade Contractors	537032	Excavating and Loading Machine and Dragline Operators	240	340	4.3	34023	HS
6	336000	Transportation Equipment Manufacturing	132011	Accountants and Auditors	100	130	2.9	57114	BA
6	336000	Transportation Equipment Manufacturing	172112	Industrial Engineers	450	640	4.5	82935	BA
6	336000	Transportation Equipment Manufacturing	173027	Mechanical Engineering Technicians	210	280	3.8	47305	AS
6	336000	Transportation Equipment Manufacturing	436014	Secretaries and Administrative Assistants, Except	90	110	2.6	28285	HS
6	336000	Transportation Equipment Manufacturing	492093	Electrical and Electronics Installers and Repairer	40	60	3.4	36584	PS
6	336000	Transportation Equipment Manufacturing	499041	Industrial Machinery Mechanics	260	500	8.6	49217	HS
6	336000	Transportation Equipment Manufacturing	499043	Maintenance Workers, Machinery	400	520	3.1	46111	HS
6	336000	Transportation Equipment Manufacturing	511011	First-Line Supervisors of Production and Operating	830	1110	3.7	49116	PS
6	336000	Transportation Equipment Manufacturing	512092	Team Assemblers	8590	11910	4.2	29315	HS

6	336000	Transportation Equipment Manufacturing	514011	Computer-Controlled Machine Tool Operators, Metal	90	120	3.2	32105	HS
6	336000	Transportation Equipment Manufacturing	514041	Machinists	510	640	2.9	36335	HS
6	336000	Transportation Equipment Manufacturing	514061	Model Makers, Metal and Plastic	190	230	2.6	22222	HS
6	336000	Transportation Equipment Manufacturing	514111	Tool and Die Makers	270	350	3.6	44995	HS
6	336000	Transportation Equipment Manufacturing	514121	Welders, Cutters, Solderers, and Brazers	570	710	3	34155	HS
6	336000	Transportation Equipment Manufacturing	514122	Welding, Soldering, and Brazing Machine Setters, O	290	420	4.8	34883	HS
7	611000	Educational Services	119151	Social and Community Service Managers	20	30	1.3	50423	BA
7	611000	Educational Services	131121	Meeting, Convention, and Event Planners	40	50	2.9	35810	BA
7	611000	Educational Services	151121	Computer Systems Analysts	70	80	1.2	81845	BA
7	611000	Educational Services	151122	Information Security Analysts, Web Developers, and	90	100	1.9	80872	BA
7	611000	Educational Services	251071	Health Specialties Teachers, Postsecondary	960	1160	2.5	76405	PhD
7	611000	Educational Services	251194	Vocational Education Teachers, Postsecondary	420	470	1.4	43700	BA
7	611000	Educational Services	252012	Kindergarten Teachers, Except Special Education	1110	1240	1.4	45135	BA
7	611000	Educational Services	252021	Elementary School Teachers, Except Special Education	9910	11040	1.4	45743	BA
7	611000	Educational Services	252022	Middle School Teachers, Except Special and Career/	3190	3550	1.4	45650	BA
7	611000	Educational Services	272022	Coaches and Scouts	790	900	1.7	30488	BA
7	611000	Educational Services	273091	Interpreters and Translators	110	130	2.4	35358	BA
7	611000	Educational Services	399031	Fitness Trainers and Aerobics Instructors	120	140	1.9	30212	HS
7	611000	Educational Services	434051	Customer Service Representatives	30	40	2.5	26590	HS
8	722000	Food Services and Drinking Places	132011	Accountants and Auditors	30	40	0.4	57114	BA
8	722000	Food Services and Drinking Places	351012	First-Line Supervisors of Food Preparation and Servers	5170	5670	1.2	25286	HS
8	722000	Food Services and Drinking Places	352012	Cooks, Institution and Cafeteria	270	270	0.3	19767	LHS
8	722000	Food Services and Drinking Places	352014	Cooks, Restaurant	8120	9000	1.3	21081	LHS
8	722000	Food Services and Drinking Places	353011	Bartenders	1930	2120	1.2	18384	LHS
8	722000	Food Services and Drinking Places	353021	Combined Food Preparation and Serving Workers, Including Fast Food	20840	22900	1.2	17700	LHS
8	722000	Food Services and Drinking Places	433031	Bookkeeping, Accounting, and Auditing Clerks	90	90	0.3	31002	HS
8	722000	Food Services and Drinking Places	433051	Payroll and Timekeeping Clerks	50	50	0.2	34933	HS
8	722000	Food Services and Drinking Places	436014	Secretaries and Administrative Assistants, Except	130	130	0.4	28285	HS
8	722000	Food Services and Drinking Places	499071	Maintenance and Repair Workers, General	110	110	0.2	35014	HS
8	722000	Food Services and Drinking Places	533031	Driver/Sales Workers	1160	1240	0.8	22332	HS
9	551000	Management of Companies and Enterprises	119051	Food Service Managers	60	80	3.2	37047	HS
9	551000	Management of Companies and Enterprises	131161	Market Research Analysts & Marketing Specialists	150	210	4.5	46556	BA

9	551000	Management of Companies and Enterprises	132051	Financial Analysts	90	120	4	70002	BA
9	551000	Management of Companies and Enterprises	151121	Computer Systems Analysts	200	280	4.1	81845	BA
9	551000	Management of Companies and Enterprises	152031	Operations Research Analysts	50	70	4.6	57476	BA
9	551000	Management of Companies and Enterprises	172112	Industrial Engineers	50	70	4.2	82935	BA
9	551000	Management of Companies and Enterprises	319094	Medical Transcriptionists	50	70	3.3	30159	PS
9	551000	Management of Companies and Enterprises	411011	First-Line Supervisors of Retail Sales Workers	70	90	3.2	34737	HS
9	551000	Management of Companies and Enterprises	411012	First-Line Supervisors of Non-Retail Sales Workers	40	50	3.2	63368	HS
9	551000	Management of Companies and Enterprises	434131	Loan Interviewers and Clerks	50	60	3.2	32071	HS
9	551000	Management of Companies and Enterprises	435061	Production, Planning, and Expediting Clerks	60	80	3.2	51641	HS
9	551000	Management of Companies and Enterprises	436014	Secretaries and Administrative Assistants, Except	150	200	3.2	28285	HS
9	551000	Management of Companies and Enterprises	499031	Home Appliance Repairers	40	50	3.3	30241	HS
9	551000	Management of Companies and Enterprises	519061	Inspectors, Testers, Sorters, Samplers, and Weighers	40	50	3.3	32380	HS
10	484000	Truck Transportation	112022	Sales Managers	50	60	1.9	79736	BA
10	484000	Truck Transportation	413099	Sales Representatives, Services, All Other	60	70	2	36854	HS
10	484000	Truck Transportation	414012	Sales Representatives, Wholesale and Manufacturing	80	90	1.7	47345	HS
10	484000	Truck Transportation	431011	First-Line Supervisors of Office and Administrative	30	40	1.7	41793	HS
10	484000	Truck Transportation	433021	Billing and Posting Clerks	110	120	1.8	29078	HS
10	484000	Truck Transportation	433031	Bookkeeping, Accounting, and Auditing Clerks	50	60	2	31002	HS
10	484000	Truck Transportation	434051	Customer Service Representatives	90	110	2.1	26590	HS
10	484000	Truck Transportation	435032	Dispatchers, Except Police, Fire, and Ambulance	410	470	1.8	33678	HS
10	484000	Truck Transportation	436014	Secretaries and Administrative Assistants, Except	230	280	2.2	28285	HS
10	484000	Truck Transportation	491011	First-Line Supervisors of Mechanics, Installers, a	60	70	2	54390	HS
10	484000	Truck Transportation	493031	Bus and Truck Mechanics and Diesel Engine Specialist	540	630	1.8	39192	HS
10	484000	Truck Transportation	531031	First-Line Supervisors of Transportation and Mater	190	220	1.9	50963	HS
10	484000	Truck Transportation	533032	Heavy and Tractor-Trailer Truck Drivers	10530	12160	1.8	38822	PS

Education Level Codes
LHS Less than high school
HS High school diploma/equivalent
PS Postsecondary non-degree award
SC Some college
AS Associate's degree
BA Bachelor's degree
MA Master's degree
PhD Doctoral or professional degree

## Gap Analysis East Region – Targeting Jobs for Training

The ten programs of study (POS) with the largest gap between projected annual openings and training completers are shown in the first part of the table below. Of most interest for the current workforce analysis, because there are limitations on training time, are occupations for which less than a bachelor's degree is required and with median wages near the state median annual wage of \$31,251. The table is sorted so the programs of study with the largest gaps appear at the top of the table.

In the Selling and Sales Management POS, services sales and wholesale sales representatives appear to be occupations without sufficient training completers. There is a gap in training for customer service representatives, although the wages are below the state median in this area. In Production Operations and Maintenance, significant shortages are foreseen for industrial machinery mechanics, general maintenance and repair workers, inspectors and testers, and their supervisors. In Precision Production, team assemblers (earning somewhat below the state median wage), computer-controlled machine tool operators, and machinists will be needed. Shortages of heavy and tractor- trailer truck drivers are also expected. Fast- growing occupations in administrative support include medical transcriptionists, clerical supervisors, dispatchers, and administrative assistants.

In the All Other Construction POS, hazardous materials removal workers may be needed, as well as insulation workers and operating engineers. Also in construction, there may be opportunities to train brickmasons and welders. Paralegal may also be in short supply. Shortages in the health-related occupations, such as for EMTs and diagnostic medical sonographers, are also listed in the table below.

## Regional Gap Analysis: East

East Region	Job Code	Job Title	POS Code	Program of Study Title	Ave Ann Openings	Completers	Gap	Median Wage	Ed Level
473000	119051	Food Service Managers	09.1000000	Restaurants and Food and Beverage Services Pathway	2511	103	2408	37,047.00	HS
473000	351012	First-Line Supervisors of Food Preparation and Ser	09.1000000	Restaurants and Food and Beverage Services Pathway	2511	103	2408	25,286.00	HS
473000	352012	Cooks, Institution and Cafeteria	09.1000000	Restaurants and Food and Beverage Services Pathway	2511	103	2408	19,767.00	LHS
473000	352014	Cooks, Restaurant	09.1000000	Restaurants and Food and Beverage Services Pathway	2511	103	2408	21,081.00	LHS
473000	353011	Bartenders	09.1000000	Restaurants and Food and Beverage Services Pathway	2511	103	2408	18,384.00	LHS
473000	353021	Combined Food Preparation and Serving Workers, Inc	09.1000000	Restaurants and Food and Beverage Services Pathway	2511	103	2408	17,700.00	LHS
473000	112022	Sales Managers	14.2000000	Selling and Sales Management	2266	0	2266	79,736.00	BA
473000	411011	First-Line Supervisors of Retail Sales Workers	14.2000000	Selling and Sales Management	2266	0	2266	34,737.00	HS
473000	411012	First-Line Supervisors of Non-Retail Sales Workers	14.2000000	Selling and Sales Management	2266	0	2266	63,368.00	HS
473000	412031	Retail Salespersons	14.2000000	Selling and Sales Management	2266	0	2266	20,285.00	LHS
473000	413099	Sales Representatives, Services, All Other	14.2000000	Selling and Sales Management	2266	0	2266	36,854.00	HS
473000	414012	Sales Representatives, Wholesale and Manufacturing	14.2000000	Selling and Sales Management	2266	0	2266	47,345.00	HS
473000	434051	Customer Service Representatives	04.5000000	Communications Development	2220	154	2066	26,590.00	HS
473000	491011	First-Line Supervisors of Mechanics, Installers, a	13.2200000	Prod.Design,Ops, and Main. Path--Operations and Maintenance	2645	905	1740	54,390.00	HS
473000	499031	Home Appliance Repairers	13.2200000	Prod.Design,Ops, and Main. Path--Operations and Maintenance	2645	905	1740	30,241.00	HS
473000	499041	Industrial Machinery Mechanics	13.2200000	Prod.Design,Ops, and Main. Path--Operations and Maintenance	2645	905	1740	49,217.00	HS
473000	499043	Maintenance Workers, Machinery	13.2200000	Prod.Design,Ops, and Main. Path--Operations and Maintenance	2645	905	1740	46,111.00	HS
473000	499071	Maintenance and Repair Workers, General	13.2200000	Prod.Design,Ops, and Main. Path--Operations and Maintenance	2645	905	1740	35,014.00	HS
473000	499094	Locksmiths and Safe Repairers	13.2200000	Prod.Design,Ops, and Main. Path--Operations and Maintenance	2645	905	1740	29,444.00	HS
473000	519061	Inspectors, Testers, Sorters, Samplers, and Weighe	13.2200000	Prod.Design,Ops, and Main. Path--Operations and Maintenance	2645	905	1740	32,380.00	HS
473000	319094	Medical Transcriptionists	04.6000000	Administrative and Information Support	2257	549	1708	30,159.00	PS
473000	431011	First-Line Supervisors of Office and Administrativ	04.6000000	Administrative and Information Support	2257	549	1708	41,793.00	HS
473000	435032	Dispatchers, Except Police, Fire, and Ambulance	04.6000000	Administrative and Information Support	2257	549	1708	33,678.00	HS
473000	436014	Secretaries and Administrative Assistants, Except	04.6000000	Administrative and Information Support	2257	549	1708	28,285.00	HS



473000	511011	First-Line Supervisors of Production and Operating	13.1000000	Precision Production Pathway	1326	136	1190	49,116.00	PS
473000	512041	Structural Metal Fabricators and Fitters	13.1000000	Precision Production Pathway	1326	136	1190	33,306.00	HS
473000	512092	Team Assemblers	13.1000000	Precision Production Pathway	1326	136	1190	29,315.00	HS
473000	514011	Computer-Controlled Machine Tool Operators, Metal	13.1000000	Precision Production Pathway	1326	136	1190	32,105.00	HS
473000	514041	Machinists	13.1000000	Precision Production Pathway	1326	136	1190	36,335.00	HS
473000	514061	Model Makers, Metal and Plastic	13.1000000	Precision Production Pathway	1326	136	1190	22,222.00	HS
473000	514111	Tool and Die Makers	13.1000000	Precision Production Pathway	1326	136	1190	44,995.00	HS
473000	113031	Financial Managers	06.3110000	Banking and Finance	1473	659	814	80,035.00	BA
473000	131131	Fundraisers	06.3110000	Banking and Finance	1473	659	814	38,013.00	BA
473000	131161	Market Research Analysts & Marketing Specialists	06.3110000	Banking and Finance	1473	659	814	46,556.00	BA
473000	132051	Financial Analysts	06.3110000	Banking and Finance	1473	659	814	70,002.00	BA
473000	252012	Kindergarten Teachers, Except Special Education	05.2110000	Teacher Training Services- Pre-K-Early Childhood Education	950	242	708	45,135.00	BA
473000	252021	Elementary School Teachers, Except Special Educati	05.1170000	Elementary Teachers, Except Special Education	1270	585	685	45,743.00	BA
473000	531031	First-Line Supervisors of Transportation and Mater	16.1300000	Truck, Bus, Rail, Water Transportation, and Heavy Equipment	652	40	612	50,963.00	HS
473000	533032	Heavy and Tractor-Trailer Truck Drivers	16.1300000	Truck, Bus, Rail, Water Transportation, and Heavy Equipment	652	40	612	38,822.00	PS
473000	433021	Billing and Posting Clerks	04.2120000	Accounting Administrative Support	498	24	474	29,078.00	HS
473000	433031	Bookkeeping, Accounting, and Auditing Clerks	04.2120000	Accounting Administrative Support	498	24	474	31,002.00	HS
473000	433051	Payroll and Timekeeping Clerks	04.2120000	Accounting Administrative Support	498	24	474	34,933.00	HS
473000	472071	Paving, Surfacing, and Tamping Equipment Operators	02.2700000	All Other Construction	456	21	435	30,300.00	HS
473000	472073	Operating Engineers and Other Construction Equipme	02.2700000	All Other Construction	456	21	435	35,258.00	HS
473000	472132	Insulation Workers, Mechanical	02.2700000	All Other Construction	456	21	435	34,337.00	HS
473000	472171	Reinforcing Iron and Rebar Workers	02.2700000	All Other Construction	456	21	435	35,463.00	HS
473000	474031	Fence Erectors	02.2700000	All Other Construction	456	21	435	N/A	HS
473000	474041	Hazardous Materials Removal Workers	02.2700000	All Other Construction	456	21	435	56,057.00	HS
473000	475021	Earth Drillers, Except Oil and Gas	02.2700000	All Other Construction	456	21	435	42,410.00	HS
473000	537021	Crane and Tower Operators	02.2700000	All Other Construction	456	21	435	38,333.00	HS
473000	537032	Excavating and Loading Machine and Dragline Operat	02.2700000	All Other Construction	456	21	435	34,023.00	HS
473000	434131	Loan Interviewers and Clerks	06.3120000	Banking and Finance Support Services	413	0	413	32,071.00	HS
473000	311011	Home Health Aides	08.4160000	Nursing Assistants and Home Health	497	87	410	18,568.00	LHS



473000	311014	Nursing Aides, Orderlies, and Attendants	08.4160000	Nursing Assistants and Home Health	497	87	410	22,370.00	PS
473000	131121	Meeting, Convention, and Event Planners	09.2000000	Lodging Pathway	367	55	312	35,810.00	BA
473000	473013	Helpers--Electricians	02.2100000	Construction Pathway - Construction Electrical	353	90	263	27,384.00	HS
473000	492098	Security and Fire Alarm Systems Installers	02.2100000	Construction Pathway - Construction Electrical	353	90	263	39,010.00	HS
473000	131111	Management Analysts	04.4000000	Business Analysis	237	0	237	75,572.00	BA
473000	131161	Market Research Analysts & Marketing Specialists	04.4000000	Business Analysis	237	0	237	46,556.00	BA
473000	152031	Operations Research Analysts	04.4000000	Business Analysis	237	0	237	57,476.00	BA
473000	172112	Industrial Engineers	15.1160000	Industrial Engineering	280	75	205	82,935.00	BA
473000	435061	Production, Planning, and Expediting Clerks	14.6000000	Channel Management	175	0	175	51,641.00	HS
473000	533031	Driver/Sales Workers	14.6000000	Channel Management	175	0	175	22,332.00	HS
473000	131151	Training and Development Specialists	04.3000000	Human Resources	169	0	169	55,257.00	BA
473000	399021	Personal Care Aides	10.4130000	Personal and Home Care	168	0	168	18,864.00	LHS
473000	131051	Cost Estimators	02.1220000	Technical Design & Preconstruction	165	0	165	55,829.00	BA
473000	131161	Market Research Analysts & Marketing Specialists	14.5000000	Marketing Research	148	0	148	46,556.00	BA
473000	373011	Landscaping and Groundskeeping Workers	01.2100000	Plant Systems Pathway - Turf grass/Nursery Production	145	0	145	23,102.00	LHS
473000	292056	Veterinary Technologists and Technicians	01.3120000	Veterinary Technology	150	23	127	28,913.00	AS
473000	392021	Nonfarm Animal Caretakers	01.3120000	Veterinary Technology	150	23	127	19,099.00	LHS
473000	332011	Firefighters	12.4140000	Fire Fighting	103	0	103	33,489.00	PS
473000	373011	Landscaping and Groundskeeping Workers	01.2200000	Plant Systems Pathway - Horticulture Production	149	89	60	23,102.00	LHS
473000	472021	Brickmasons and Blockmasons	02.2200000	Construction Pathway - Construction Masonry & Concrete	83	23	60	43,569.00	HS
473000	472051	Cement Masons and Concrete Finishers	02.2200000	Construction Pathway - Construction Masonry & Concrete	83	23	60	32,416.00	LHS
473000	473011	Helpers--Brickmasons, Blockmasons, Stonemasons, and	02.2200000	Construction Pathway - Construction Masonry & Concrete	83	23	60	24,980.00	LHS
473000	499045	Refractory Materials Repairers, Except Brickmasons	02.2200000	Construction Pathway - Construction Masonry & Concrete	83	23	60	N/A	HS
473000	472151	Pipelayers	02.2300000	Construction Pathway - Construction Plumbing	89	30	59	34,258.00	LHS
473000	514121	Welders, Cutters, Solderers, and Brazers	02.2500000	Construction Pathway - Construction Welding	232	178	54	34,155.00	HS
473000	514122	Welding, Soldering, and Brazing Machine Setters, O	02.2500000	Construction Pathway - Construction Welding	232	178	54	34,883.00	HS
473000	232011	Paralegals and Legal Assistants	12.4110000	Legal Assisting	111	58	53	44,735.00	AS
473000	232093	Title Examiners, Abstractors, and Searchers	12.4110000	Legal Assisting	111	58	53	37,386.00	HS
473000	232099	Legal Support Workers, All Other	12.4110000	Legal Assisting	111	58	53	47,726.00	HS
473000	292041	Emergency Medical Technicians and Paramedics	08.1190000	Emergency Medical Tech.	132	83	49	27,952.00	PS

473000	251071	Health Specialties Teachers, Postsecondary	08.1390000	Health Specialties Teachers, Postsecondary	40	0	40	76,405.00	PhD
473000	292032	Diagnostic Medical Sonographers	08.2110000	Ultrasonic Technician	36	0	36	58,879.00	AS
473000	492011	Computer, Automated Teller, and Office Machine Rep	13.2210000	Electrical, Electronic Equip. Repairers	162	130	32	31,961.00	SC
473000	492093	Electrical and Electronics Installers and Repairer	13.2210000	Electrical, Electronic Equip. Repairers	162	130	32	36,584.00	PS
473000	273091	Interpreters and Translators	05.1130000	Support Services- Interpreters/Translators	50	20	30	35,358.00	BA
473000	131051	Cost Estimators	13.2100000	Prod. Design, Ops, and Maint. Pathway -- Prod.	28	0	28	55,829.00	BA
473000	173027	Mechanical Engineering Technicians	15.1280000	Mechanical Engineering Technology	19	2	17	47,305.00	AS
473000	475031	Explosives Workers, Ordnance Handling Experts, and	01.5150000	Oil, Gas, and Coal Production	17	0	17	58,592.00	HS
473000	292055	Surgical Technologists	08.1180000	Surgical Technologist	36	39	-3	36,752.00	PS
473000	292031	Cardiovascular Technologists and Technicians	08.2230000	Cardiovascular Technologists and Technicians	14	19	-5	49,968.00	AS
473000	493031	Bus and Truck Mechanics and Diesel Engine Speciali	16.4300000	Diesel Technology	51	57	-6	39,192.00	HS
473000	151121	Computer Systems Analysts	11.3400000	Web/Multimedia Management, Programming	1150	1162	-12	81,845.00	BA
473000	211021	Child, Family, and School Social Workers	10.3110000	Social Work	415	433	-18	40,943.00	BA
473000	211022	Healthcare Social Workers	10.3110000	Social Work	415	433	-18	43,151.00	MA
473000	211029	Social Workers, All Other	10.3110000	Social Work	415	433	-18	38,837.00	BA
473000	251194	Vocational Education Teachers, Postsecondary	05.1180000	Middle, Secondary and Vocational Education Teachers	1500	1525	-25	43,700.00	BA
473000	252022	Middle School Teachers, Except Special and Career/	05.1180000	Middle, Secondary and Vocational Education Teachers	1500	1525	-25	45,650.00	BA
473000	493042	Mobile Heavy Equipment Mechanics, Except Engines	16.4200000	Collision Repair Technology	62	95	-33	38,945.00	HS
473000	272022	Coaches and Scouts	09.4000000	Recreation, Amusements and Attractions Pathway	550	602	-52	30,488.00	BA
473000	399031	Fitness Trainers and Aerobics Instructors	09.4000000	Recreation, Amusements and Attractions Pathway	550	602	-52	30,212.00	HS
473000	151122	Information Security Analysts, Web Developers, and	11.1000000	Network Systems	111	164	-53	80,872.00	BA
473000	151134	Web Developers	11.1000000	Network Systems	111	164	-53	51,014.00	AS
473000	231011	Lawyers	12.4120000	Law	475	609	134	94,968.00	PhD
473000	132011	Accountants and Auditors	04.2110000	Accounting	1095	1294	199	57,114.00	BA
473000	119151	Social and Community Service Managers	10.2130000	Human Services	566	856	290	50,423.00	BA
473000	211011	Substance Abuse and Behavioral Disorder Counselors	10.2130000	Human Services	566	856	290	33,825.00	HS
473000	211093	Social and Human Service Assistants	10.2130000	Human Services	566	856	290	26,675.00	HS

## Licensing and Certification: East

East Region	Job Code	Job Title	Licenses and Certifications
473000	433031	Bookkeeping, Accounting, and Auditing Clerks	Certified Public Accountant (CPA)
473000	292031	Cardiovascular Technologists and Technicians	Registered Cardiovascular Invasive Specialist (RCIS)
473000	492011	Computer, Automated Teller, and Office Machine Rep	A+ Certification
473000	292032	Diagnostic Medical Sonographers	Registered Diagnostic Medical Sonographer (RDMS)
473000	533031	Driver/Sales Workers	Commercial Drivers License (CDL)
473000	492093	Electrical and Electronics Installers and Repairers	Electronics Technicians Association (ETA) International Certification
473000	292041	Emergency Medical Technicians and Paramedics	Emergency Medical Technician (EMT)
473000	113031	Financial Managers	National Certified Compliance Officer (NCCO)
473000	332011	Firefighters	Emergency Medical Technician (EMT)
473000	351012	First-Line Supervisors of Food Preparation and Ser	Certified Dietary Manager
473000	211022	Healthcare Social Workers	Licensed Clinical Social Worker (LCSW)
473000	533032	Heavy and Tractor-Trailer Truck Drivers	Commercial Drivers License (CDL)
473000	473013	Helpers--Electricians	HVAC Certification
473000	311011	Home Health Aides	Certified Nursing Assistant (CNA)
473000	373011	Landscaping and Groundskeeping Workers	Irrigation Certification
473000	434131	Loan Interviewers and Clerks	American Institute For Chartered Property Casualty Underwriters Certification
473000	131111	Management Analysts	Certified Investment Management Analyst (CIMA)
473000	399021	Personal Care Aides	Certified Nursing Assistant (CNA)
473000	435061	Production, Planning, and Expediting Clerks	APICS Certification
473000	211011	Substance Abuse and Behavioral Disorder Counselors	Licensed Clinical Social Worker (LCSW)
473000	292055	Surgical Technologists	Certified Surgical Technologist
473000	131151	Training and Development Specialists	Senior Professional in Human Resources (SPHR)
473000	514121	Welders, Cutters, Solderers, and Brazers	Certified Welder

## Regional Jobs Listings and Applications: East Region

Another form of gap analysis is to review the number and type of jobs being posted on the jobs4tn.gov website and the number of job seekers applying for those jobs. Internally – posted occupations with more than four openings and applicants for those occupations for November 2015 are shown in the table following.

Occupations listed as demand occupations in the previous “gap analysis” table have a “Yes” in the Job Match column.

Several of the occupations with more job openings than applicants and matching the regional gap analysis include customer service representatives, emergency medical technicians, service and wholesale sales representatives, welders, and truck drivers. There are also significant numbers of openings for computer-controlled machine tool operators, inspectors and testers, machinery maintenance workers, and team assemblers. In the health care area, although these occupations were not among the fastest-growing, significant numbers of openings exist for patient representatives, registered nurses, and licensed practical nurses.

### Regional Jobs Listing and Applications: East

Job Code	Job Title	Sum of Openings	Sum of Applications	Job Match to Gap Analysis	Openings Minus Applicants
132011	Accountants	7	11	Yes	-4
434051	Customer Service Representatives	158	94	Yes	64
533031	Driver/Sales Workers	23	39	Yes	-16
292041	Emergency Medical Technicians and Paramedics	12	4	Yes	8
431011	First-Line Supervisors of Office and Administrative Support Workers	14	19	Yes	-5
511011	First-Line Supervisors of Production and Operating Workers	10	15	Yes	-5
119051	Food Service Managers	12	1	Yes	11
131131	Fundraisers	10	0	Yes	10
533032	Heavy and Tractor-Trailer Truck Drivers	1091	35	Yes	1056
311011	Home Health Aides	95	9	Yes	86
499041	Industrial Machinery Mechanics	10	13	Yes	-3
373011	Landscaping and Groundskeeping Workers	41	19	Yes	22
499071	Maintenance and Repair Workers, General	13	39	Yes	-26
131111	Management Analysts	6	7	Yes	-1
131161	Market Research Analysts and Marketing Specialists	5	0	Yes	5
434051	Patient Representatives	50	8	Yes	42
472071	Paving, Surfacing, and Tamping Equipment Operators	6	1	Yes	5
399021	Personal Care Aides	190	7	Yes	183
412031	Retail Salespersons	173	109	Yes	64
413099	Sales Representatives, Services, All Other	23	12	Yes	11
414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	22	8	Yes	14
514121	Welders, Cutters, and Welder Fitters	93	29	Yes	64

The table below lists the top 10 industries expected to create the most jobs and the fastest-growing demand occupations in those industries. Some occupations will be listed more than once, because they are important in more than one industry. Of particular interest for workforce development planning are the occupations requiring less than a bachelor's degree. For example, in the Administrative and Support Services industry, two of the fastest growing occupations are hotel, motel and resort desk clerks and security and fire alarm systems installers, both requiring a high school degree. The first has a median wage of just over \$19,000, and the second almost \$42,000.

In the Ambulatory Health Care industry, diagnostic medical sonographers are expected to expand employment more than five percent annually, have a salary significantly larger than the state median wage of \$31,251 and require an associate's degree. More than 4,000 new team assembler jobs are expected in the Transportation Equipment Manufacturing industry by 2022, requiring on average a high school degree. Other fast-growing occupations in industries creating the most jobs in the region are listed below.

## Industries Creating the Most New Jobs and Demand Occupations- Middle Region

Middle Industry Rank	Industry Code	Industry Title	Job Code	Job Title	2014 Employment	Projected 2022 Employment	Annual Average Growth	Median Wage	Ed Level
1	561000	Administrative and Support Services	252022	Middle School Teachers, Except Special and Career/	40	50	4.247	48668	BA
1	561000	Administrative and Support Services	332011	Firefighters	50	70	4.904	37944	PS
1	561000	Administrative and Support Services	434081	Hotel, Motel, and Resort Desk Clerks	100	150	4.509	19138	HS
1	561000	Administrative and Support Services	492098	Security and Fire Alarm Systems Installers	260	370	4.766	41966	HS
1	561000	Administrative and Support Services	499094	Locksmiths and Safe Repairers	120	170	4.679	34431	HS
2	611000	Educational Services	131111	Management Analysts	60	100	5.543	70268	BA
2	611000	Educational Services	131121	Meeting, Convention, and Event Planners	30	50	4.13	36316	BA
2	611000	Educational Services	251071	Health Specialties Teachers, Postsecondary	930	1210	3.347	65212	PhD
2	611000	Educational Services	252012	Kindergarten Teachers, Except Special Education	1530	1980	3.307	51868	BA
2	611000	Educational Services	252021	Elementary School Teachers, Except Special Education	10570	13700	3.301	48252	BA
3	621000	Ambulatory Health Care Services	131151	Training and Development Specialists	60	80	4.958	51237	BA
3	621000	Ambulatory Health Care Services	211011	Substance Abuse and Behavioral Disorder Counselors	70	100	5.073	35251	HS
3	621000	Ambulatory Health Care Services	292032	Diagnostic Medical Sonographers	280	420	5.059	64778	AS
3	621000	Ambulatory Health Care Services	311011	Home Health Aides	610	900	4.989	19235	LHS

3	621000	Ambulatory Health Care Services	311014	Nursing Aides, Orderlies, and Attendants	1800	2680	5.065	21863	PS
3	621000	Ambulatory Health Care Services	391021	First-Line Supervisors of Personal Service Workers	80	110	4.743	31195	HS
3	621000	Ambulatory Health Care Services	399021	Personal Care Aides	860	1270	4.978	18445	LHS
4	541000	Professional, Scientific, and Technical Services	131031	Claims Adjusters, Examiners, and Investigators	40	50	4.704	53548	HS
4	541000	Professional, Scientific, and Technical Services	151122	Information Security Analysts, Web Developers, and	80	120	4.875	72287	BA
4	541000	Professional, Scientific, and Technical Services	194031	Chemical Technicians	40	60	4.795	37012	AS
4	541000	Professional, Scientific, and Technical Services	194099	Life, Physical, and Social Science Technicians, AI	130	200	5.363	50607	AS
4	541000	Professional, Scientific, and Technical Services	232011	Paralegals and Legal Assistants	1630	2520	5.632	51279	AS
4	541000	Professional, Scientific, and Technical Services	232093	Title Examiners, Abstractors, and Searchers	150	210	4.683	31767	HS
4	541000	Professional, Scientific, and Technical Services	273091	Interpreters and Translators	40	70	7.742	36526	BA
4	541000	Professional, Scientific, and Technical Services	292056	Veterinary Technologists and Technicians	320	460	4.849	26803	AS
4	541000	Professional, Scientific, and Technical Services	434061	Eligibility Interviewers, Government Programs	60	90	4.847	33632	HS
4	541000	Professional, Scientific, and Technical Services	475031	Explosives Workers, Ordnance Handling Experts, and	40	70	5.592	57366	HS
5	336000	Transportation Equipment Manufacturing	131081	Logisticians	310	390	2.887	59410	BA
5	336000	Transportation Equipment Manufacturing	151121	Computer Systems Analysts	220	320	4.695	72426	BA
5	336000	Transportation Equipment Manufacturing	414012	Sales Representatives, Wholesale and Manufacturing	70	90	2.979	49654	HS
5	336000	Transportation Equipment Manufacturing	433051	Payroll and Timekeeping Clerks	40	40	2.54	37357	HS
5	336000	Transportation Equipment Manufacturing	499041	Industrial Machinery Mechanics	550	690	2.829	53741	HS
5	336000	Transportation Equipment Manufacturing	499043	Maintenance Workers, Machinery	140	180	2.865	39794	HS
5	336000	Transportation Equipment Manufacturing	499071	Maintenance and Repair Workers, General	1080	1350	2.862	36434	HS
5	336000	Transportation Equipment Manufacturing	512091	Fiberglass Laminators and Fabricators	50	70	5.105	23047	HS
5	336000	Transportation Equipment Manufacturing	512092	Team Assemblers	14740	18830	3.107	29791	HS
5	336000	Transportation Equipment Manufacturing	514011	Computer-Controlled Machine Tool Operators, Metal	280	360	3.28	36020	HS

5	336000	Transportation Equipment Manufacturing	514041	Machinists	320	400	2.813	42303	HS
5	336000	Transportation Equipment Manufacturing	519061	Inspectors, Testers, Sorters, Samplers, and Weighers	1210	1630	3.789	30796	HS
6	722000	Food Services and Drinking Places	351012	First-Line Supervisors of Food Preparation and Ser	4970	5700	1.727	29002	HS
6	722000	Food Services and Drinking Places	352014	Cooks, Restaurant	8640	9990	1.837	21102	LHS
6	722000	Food Services and Drinking Places	353011	Bartenders	1990	2140	0.915	18182	LHS
7	238000	Specialty Trade Contractors	131161	Market Research Analysts & Marketing Specialists	30	50	5.455	49338	BA
7	238000	Specialty Trade Contractors	172051	Civil Engineers	90	130	3.869	86491	BA
7	238000	Specialty Trade Contractors	411011	First-Line Supervisors of Retail Sales Workers	50	60	3.876	35180	HS
7	238000	Specialty Trade Contractors	414011	Sales Representatives, Wholesale and Manufacturing	50	60	3.73	68808	BA
7	238000	Specialty Trade Contractors	472021	Brickmasons and Blockmasons	450	650	4.637	37517	HS
7	238000	Specialty Trade Contractors	472022	Stonemasons	130	190	4.858	34808	HS
7	238000	Specialty Trade Contractors	472071	Paving, Surfacing, and Tamping Equipment Operators	170	230	3.777	32151	HS
7	238000	Specialty Trade Contractors	472073	Operating Engineers and Other Construction Equipment	310	420	3.786	36257	HS
7	238000	Specialty Trade Contractors	472132	Insulation Workers, Mechanical	150	220	5.496	30375	HS
7	238000	Specialty Trade Contractors	472151	Pipelayers	130	180	3.786	30682	LHS
7	238000	Specialty Trade Contractors	472152	Plumbers, Pipefitters, and Steamfitters	1800	2420	3.751	46223	HS
7	238000	Specialty Trade Contractors	473013	Helpers--Electricians	750	1070	4.545	29932	HS
7	238000	Specialty Trade Contractors	474011	Construction and Building Inspectors	50	70	3.786	46181	HS
7	238000	Specialty Trade Contractors	474031	Fence Erectors	110	150	4.4	30209	#N/A
7	238000	Specialty Trade Contractors	475021	Earth Drillers, Except Oil and Gas	40	60	3.74	41572	HS
7	238000	Specialty Trade Contractors	492022	Telecommunications Equipment Installers and Repair	280	400	4.508	38318	PS
7	238000	Specialty Trade Contractors	499044	Millwrights	130	180	4.006	44268	HS
7	238000	Specialty Trade Contractors	533032	Heavy and Tractor-Trailer Truck Drivers	600	800	3.748	37272	PS
8	551000	Management of Companies and Enterprises	113031	Financial Managers	350	490	4.322	89428	BA
8	551000	Management of Companies and Enterprises	132051	Financial Analysts	170	250	5.304	68102	BA
8	551000	Management of Companies and Enterprises	499031	Home Appliance Repairers	120	170	4.327	30413	HS
9	923000	Local Government, Except Education and Hospitals	132021	Appraisers and Assessors of Real Estate	120	140	1.644	53898	BA
9	923000	Local Government, Except Education and	172111	Health and Safety Engineers, Except	40	40	1.639	75814	BA

		Hospitals		Mining Safety					
9	923000	Local Government, Except Education and Hospitals	173022	Civil Engineering Technicians	90	100	1.683	50145	AS
9	923000	Local Government, Except Education and Hospitals	173031	Surveying and Mapping Technicians	40	50	1.683	39021	HS
9	923000	Local Government, Except Education and Hospitals	231021	Administrative Law Judges, Adjudicators, and Hearing Officers	50	60	1.621	85395	PhD
9	923000	Local Government, Except Education and Hospitals	434071	File Clerks	60	70	1.628	25770	HS
9	923000	Local Government, Except Education and Hospitals	434199	Information and Record Clerks, All Other	90	100	1.683	37779	HS
9	923000	Local Government, Except Education and Hospitals	439021	Data Entry Keyers	60	70	1.628	28331	HS
9	923000	Local Government, Except Education and Hospitals	472141	Painters, Construction and Maintenance	40	50	1.762	30281	LHS
9	923000	Local Government, Except Education and Hospitals	533011	Ambulance Drivers and Attendants, Except Emergency	40	50	1.683	23238	HS
10	622000	Hospitals	151141	Database Administrators	50	60	3.662	79791	BA
10	622000	Hospitals	151143	Computer Network Architects	40	60	3.974	106165	BA
10	622000	Hospitals	291051	Pharmacists	530	640	2.313	121217	PhD
10	622000	Hospitals	291123	Physical Therapists	390	460	2.098	82881	PhD
10	622000	Hospitals	312021	Physical Therapist Assistants	150	190	3.092	54028	AS
10	622000	Hospitals	312022	Physical Therapist Aides	70	100	5.07	22089	HS
10	622000	Hospitals	436013	Medical Secretaries	630	740	2.065	28660	HS

Education Level Codes
LHS Less than high school
HS High school diploma/equivalent
PS Postsecondary non-degree award
SC Some college
AS Associate's degree
BA Bachelor's degree
MA Master's degree
PhD Doctoral or professional degree



## Gap Analysis Middle Region- Targeting Jobs for Training

The 10 programs of study with the largest gap between projected annual openings and training completers are shown in the first part of the table below. Of most interest for the current workforce analysis due to limitations on training time are occupations requiring less than a bachelor's degree and with median wages near the state median annual wage of \$31,251. As seen below, in the Selling and Sales Management program of study (POS), the two occupations of supervisors of retail sales workers and services sales representative both require only a high school education and have median wages higher than the state median. The next program of study, Restaurants and Food Service, has occupations primarily requiring less than a high school education and salaries lower than the state median wage.

In the Administration and Support POS, information and record clerks and dispatchers require only a high school education and have salaries above the state median. In the Precision Production POS, computer-controlled machine tool operators and machinists require high school education, as do team assemblers, which pays close to the state median wage. In the Operations and Maintenance POS, industrial machinery mechanics and machinery maintenance workers need to be high school graduates, at least; medical equipment repairers need an associate's degree. Jobs as inspectors and testers pay nearly the state median wage.

In the Banking and Finance POS (including insurance), jobs for claims adjusters and examiners require education at the high school level and pay higher than the state median. Heavy and Tractor-Trailer Truck Drivers are in short supply and require postsecondary certification. Elementary teachers are needed. Accounting administrative employees such as bookkeeping and auditing staff are being trained in insufficient numbers. Operating engineers and insulation workers are fast-growing occupations in construction. Insufficient numbers of civil engineering technicians, plumbers and pipefitters, and masons are being trained.

### Regional Gap Analysis Table: Middle

Job Code	Job Title	POS Code	Program of Study Title	Ann Ave Openings	Completers	Gap	Median Wage	Ed Level
132021	Appraisers and Assessors of Real Estate	14.2000000	Selling and Sales Management	3290	1	3289	53,898.00	BA
411011	First-Line Supervisors of Retail Sales Workers	14.2000000	Selling and Sales Management	3290	1	3289	35,180.00	HS
413099	Sales Representatives, Services, All Other	14.2000000	Selling and Sales Management	3290	1	3289	46,866.00	HS
414011	Sales Representatives, Wholesale and Manufacturing	14.2000000	Selling and Sales Management	3290	1	3289	68,808.00	BA
414012	Sales Representatives, Wholesale and Manufacturing	14.2000000	Selling and Sales Management	3290	1	3289	49,654.00	HS
351012	First-Line Supervisors of Food Preparation and Ser	09.1000000	Restaurants and Food and Beverage Services Pathway	3010	360	2650	29,002.00	HS
352012	Cooks, Institution and Cafeteria	09.1000000	Restaurants and Food and Beverage Services Pathway	3010	360	2650	21,718.00	LHS
352014	Cooks, Restaurant	09.1000000	Restaurants and Food and Beverage Services Pathway	3010	360	2650	21,102.00	LHS
352021	Food Preparation Workers	09.1000000	Restaurants and Food and Beverage Services Pathway	3010	360	2650	18,452.00	LHS
353011	Bartenders	09.1000000	Restaurants and Food and Beverage Services Pathway	3010	360	2650	18,182.00	LHS
353021	Combined Food Preparation and Serving Workers, Inc.	09.1000000	Restaurants and Food and Beverage Services Pathway	3010	360	2650	18,072.00	LHS
434071	File Clerks	04.6000000	Administrative and Information Support	3480	1069	2411	25,770.00	HS
434199	Information and Record Clerks,	04.6000000	Administrative and Information	3480	1069	2411	37,779.00	HS

	All Other		Support					
435032	Dispatchers, Except Police, Fire, and Ambulance	04.6000000	Administrative and Information Support	3480	1069	2411	34,999.00	HS
436013	Medical Secretaries	04.6000000	Administrative and Information Support	3480	1069	2411	28,660.00	HS
436014	Secretaries and Administrative Assistants, Except	04.6000000	Administrative and Information Support	3480	1069	2411	30,053.00	HS
439021	Data Entry Keyers	04.6000000	Administrative and Information Support	3480	1069	2411	28,331.00	HS
512091	Fiberglass Laminators and Fabricators	13.1000000	Precision Production Pathway	1940	467	1473	23,047.00	HS
512092	Team Assemblers	13.1000000	Precision Production Pathway	1940	467	1473	29,791.00	HS
514011	Computer-Controlled Machine Tool Operators, Metal	13.1000000	Precision Production Pathway	1940	467	1473	36,020.00	HS
514041	Machinists	13.1000000	Precision Production Pathway	1940	467	1473	42,303.00	HS
113031	Financial Managers	06.3110000	Banking and Finance	1470	659.00	811	89,428.00	BA
131031	Claims Adjusters, Examiners, and Investigators	06.3110000	Banking and Finance	1470	659.00	811	53,548.00	HS
131161	Market Research Analysts & Marketing Specialists	06.3110000	Banking and Finance	1470	659.00	811	49,338.00	BA
132051	Financial Analysts	06.3110000	Banking and Finance	1470	659.00	811	68,102.00	BA
132099	Financial Specialists, All Other	06.3110000	Banking and Finance	1470	659.00	811	50,037.00	BA
252012	Kindergarten Teachers, Except Special Education	05.2110000	Teacher Training Services- Pre-K-Early Childhood Education	950	242.00	708	51,868.00	BA
499031	Home Appliance Repairers	13.2200000	Prod. Design, Ops, and Maintenance Path -- Operations & Maintenance	1210	504	706	30,413.00	HS
499041	Industrial Machinery Mechanics	13.2200000	Prod. Design, Ops, and Maintenance Path -- Operations & Maintenance	1210	504	706	53,741.00	HS
499043	Maintenance Workers, Machinery	13.2200000	Prod. Design, Ops, and Maintenance Path -- Operations & Maintenance	1210	504	706	39,794.00	HS
499044	Millwrights	13.2200000	Prod. Design, Ops, and Maint. Path -- Operations & Maint.	1210	504	706	44,268.00	HS
499062	Medical Equipment Repairers	13.2200000	Prod. Design, Ops, and Maint. Path -- Operations & Maint.	1210	504	706	39,027.00	AS
499071	Maintenance and Repair Workers, General	13.2200000	Prod. Design, Ops, and Maint. Path -- Operations & Maint.	1210	504	706	36,434.00	HS
499094	Locksmiths and Safe Repairers	13.2200000	Prod. Design, Ops, and Maint. Path -- Operations & Maint.	1210	504	706	34,431.00	HS
519061	Inspectors, Testers, Sorters, Samplers, and Weighers	13.2200000	Prod. Design, Ops, and Maint. Path -- Operations & Maint.	1210	504	706	30,796.00	HS
311011	Home Health Aides	08.4160000	Nursing Assistants and Home Health	710	9	701	19,235.00	LHS
311014	Nursing Aides, Orderlies, and Attendants	08.4160000	Nursing Assistants and Home Health	710	9	701	21,863.00	PS
531031	First-Line Supervisors of Transportation and Mater	16.1300000	Truck, Bus, Rail, Water Transportation, and Heavy Equipment	900	204	696	54,163.00	HS
533011	Ambulance Drivers and Attendants, Except Emergency	16.1300000	Truck, Bus, Rail, Water Transportation, and Heavy Equipment	900	204	696	23,238.00	HS
533032	Heavy and Tractor-Trailer Truck Drivers	16.1300000	Truck, Bus, Rail, Water Transportation, and Heavy Equipment	900	204	696	37,272.00	PS
252021	Elementary School Teachers, Except Special Education	05.1170000	Elementary Teachers, Except Special Education	1270	585.00	685	48,252.00	BA
433031	Bookkeeping, Accounting, and Auditing Clerks	04.2120000	Accounting Administrative Support	690	70	620	35,413.00	HS
433051	Payroll and Timekeeping Clerks	04.2120000	Accounting Administrative Support	690	70	620	37,357.00	HS
131111	Management Analysts	04.4000000	Business Analysis	470	0	470	70,268.00	BA
131161	Market Research Analysts & Marketing Specialists	04.4000000	Business Analysis	470	0	470	49,338.00	BA
152031	Operations Research Analysts	04.4000000	Business Analysis	470	0	470	68,668.00	BA
472071	Paving, Surfacing, and Tamping Equipment Operators	02.2700000	All Other Construction	520	112	408	32,151.00	HS
472073	Operating Engineers and Other Construction Equipment	02.2700000	All Other Construction	520	112	408	36,257.00	HS
472132	Insulation Workers, Mechanical	02.2700000	All Other Construction	520	112	408	30,375.00	HS
472141	Painters, Construction and Maintenance	02.2700000	All Other Construction	520	112	408	30,281.00	LHS

474031	Fence Erectors	02.2700000	All Other Construction	520	112	408	30,209.00	#N/A
475021	Earth Drillers, Except Oil and Gas	02.2700000	All Other Construction	520	112	408	41,572.00	HS
131121	Meeting, Convention, and Event Planners	09.2000000	Lodging Pathway	330	0	330	36,316.00	BA
391021	First-Line Supervisors of Personal Service Workers	09.2000000	Lodging Pathway	330	0	330	31,195.00	HS
434081	Hotel, Motel, and Resort Desk Clerks	09.2000000	Lodging Pathway	330	0	330	19,138.00	HS
131151	Training and Development Specialists	04.3000000	Human Resources	340	41	299	51,237.00	BA
435061	Production, Planning, and Expediting Clerks	14.6000000	Channel Management	250	0	250	45,248.00	HS
533031	Driver/Sales Workers	14.6000000	Channel Management	250	0	250	29,580.00	HS
473013	Helpers--Electricians	02.2100000	Construction Pathway - Construction Electrical	390	155	235	29,932.00	HS
492098	Security and Fire Alarm Systems Installers	02.2100000	Construction Pathway - Construction Electrical	390	155	235	41,966.00	HS
173022	Civil Engineering Technicians	02.1220000	Technical Design & Preconstruction	210	25	185	50,145.00	AS
474011	Construction and Building Inspectors	02.1220000	Technical Design & Preconstruction	210	25	185	46,181.00	HS
131161	Market Research Analysts & Marketing Specialists	14.5000000	Marketing Research	150	0.00	150	49,338.00	BA
399021	Personal Care Aides	10.4130000	Personal and Home Care	150	0	150	18,445.00	LHS
472151	Pipelayers	02.2300000	Construction Pathway - Construction Plumbing	140	7	133	30,682.00	LHS
472152	Plumbers, Pipefitters, and Steamfitters	02.2300000	Construction Pathway - Construction Plumbing	140	7	133	46,223.00	HS
131041	Compliance Officers	07.7120000	Compliance Officers	120	0	120	50,824.00	BA
472021	Brickmasons and Blockmasons	02.2200000	Construction Pathway - Construction Masonry & Concrete	100	21	79	37,517.00	HS
472022	Stonemasons	02.2200000	Construction Pathway - Construction Masonry & Concrete	100	21	79	34,808.00	HS
332011	Firefighters	12.4140000	Fire Fighting	120	46	74	37,944.00	PS
434061	Eligibility Interviewers, Government Programs	07.7150000	Eligibility Interviewers, Government Programs	70	0	70	33,632.00	HS
292056	Veterinary Technologists and Technicians	01.3120000	Veterinary Technology	130	69	61	26,803.00	AS
493031	Bus and Truck Mechanics and Diesel Engine Specialist	16.4300000	Diesel Technology	80	28	52	43,031.00	HS
251071	Health Specialties Teachers, Postsecondary	08.1390000	Health Specialties Teachers, Postsecondary	50	0	50	65,212.00	PhD
151122	Information Security Analysts, Web Developers, and	11.1000000	Network Systems	240	192	48	72,287.00	BA
151142	Network and Computer Systems Administrators	11.1000000	Network Systems	240	192	48	67,263.00	BA
151143	Computer Network Architects	11.1000000	Network Systems	240	192	48	106,165.00	BA
151152	Computer Network Support Specialists	11.1000000	Network Systems	240	192	48	55,586.00	AS
492022	Telecommunications Equipment Installers and Repair	13.2210000	Electrical, Electronic Equip. Repairers	190	142	48	38,318.00	PS
299011	Occupational Health and Safety Specialists	08.4130000	Industrial Hygiene	30	0	30	66,201.00	BA
173031	Surveying and Mapping Technicians	15.1250000	Surveying and Civil Technology	50	21	29	39,021.00	HS
292032	Diagnostic Medical Sonographers	08.2110000	Ultrasonic Technician	40	11	29	64,778.00	AS
194099	Life, Physical, and Social Science Technicians, AI	15.3160000	Science Technologies	50	26	24	50,607.00	AS
475031	Explosives Workers, Ordnance Handling Experts, and	01.5150000	Oil, Gas, and Coal Production	20	0	20	57,366.00	HS
131081	Logisticians	16.1200000	Transportation Operations Pathway - Transportation Systems	40	21	19	59,410.00	BA
232011	Paralegals and Legal Assistants	12.4110000	Legal Assisting	200	184	16	51,279.00	AS
232093	Title Examiners, Abstractors, and Searchers	12.4110000	Legal Assisting	200	184	16	31,767.00	HS
194031	Chemical Technicians	15.1310000	Chemical Technology	10	0	10	37,012.00	AS

273091	Interpreters and Translators	05.1130000	Support Services- Interpreters/Translators	10	0.00	10	36,526.00	BA
291123	Physical Therapists	08.1170000	Physical Therapy	220	219.00	1	82,881.00	PhD
312021	Physical Therapist Assistants	08.1130000	Physical Therapy Assistant	70	74	-4	54,028.00	AS
312022	Physical Therapist Aides	08.1130000	Physical Therapy Assistant	70	74	-4	22,089.00	HS
113021	Computer and Information Systems Managers	11.3400000	Web/Multimedia Management, Programming	1150	1162.00	-12	101,548.00	BA
151121	Computer Systems Analysts	11.3400000	Web/Multimedia Management, Programming	1150	1162.00	-12	72,426.00	BA
151132	Software Developers, Applications	11.3400000	Web/Multimedia Management, Programming	1150	1162.00	-12	81,834.00	BA
151141	Database Administrators	11.3400000	Web/Multimedia Management, Programming	1150	1162.00	-12	79,791.00	BA
151151	Computer Support Specialists	11.3400000	Web/Multimedia Management, Programming	1150	1162.00	-12	42,585.00	SC
172111	Health and Safety Engineers, Except Mining Safety	15.1190000	All Other Engineers	130	146.00	-16	75,814.00	BA
252022	Middle School Teachers, Except Special and Career/	05.1180000	Middle, Secondary and Vocational Education Teachers	1500	1525.00	-25	48,668.00	BA
291051	Pharmacists	08.1330000	Pharmacists	370	405.00	-35	121,217.00	PhD
172051	Civil Engineers	15.1130000	Civil Engineering	220	270.00	-50	86,491.00	BA
231011	Lawyers	12.4120000	Law	480	609.00	-129	104,154.00	PhD
231021	Administrative Law Judges, Adjudicators, and Heari	12.4120000	Law	480	609.00	-129	85,395.00	PhD
211011	Substance Abuse and Behavioral Disorder Counselors	10.2130000	Human Services	570	856.00	-286	35,251.00	HS

### Licensing and Certification: Middle

Middle Region	Job Code	Job Title	Certification
472000	433031	Bookkeeping, Accounting, and Auditing Clerks	Certified Public Accountant (CPA)
472000	493031	Bus and Truck Mechanics and Diesel Engine Specialist	Commercial Drivers License (CDL)
472000	173022	Civil Engineering Technicians	NCCER Core Curriculum
472000	131031	Claims Adjusters, Examiners, and Investigators	National Certified Compliance Officer (NCCO)
472000	151143	Computer Network Architects	Cisco Certified Entry Network Tech (CCENT)
472000	151152	Computer Network Support Specialists	Cisco Certified Entry Network Tech (CCENT)
472000	151151	Computer Support Specialists	CompTIA A+ Certification
472000	474011	Construction and Building Inspectors	NCCER Core Curriculum
472000	292032	Diagnostic Medical Sonographers	Registered Diagnostic Medical Sonographer (RDMS)
472000	533031	Driver/Sales Workers	Commercial Drivers License (CDL)
472000	475021	Earth Drillers, Except Oil and Gas	Commercial Drivers License (CDL)
472000	132051	Financial Analysts	National Certified Compliance Officer (NCCO)
472000	113031	Financial Managers	National Certified Compliance Officer (NCCO)
472000	132099	Financial Specialists, All Other	National Certified Compliance Officer (NCCO)
472000	332011	Firefighters	Emergency Medical Technician (EMT)
472000	531031	First-Line Supervisors of Transportation and Material	Commercial Drivers License (CDL)
472000	533032	Heavy and Tractor-Trailer Truck Drivers	Commercial Drivers License (CDL)
472000	473013	Helpers--Electricians	NCCER Electrical Level One
472000	151122	Information Security Analysts	Cisco Certified Entry Network Tech (CCENT)
472000	194099	Life, Physical, and Social Science Technicians, All	National Board for Certification in Occupational Therapy
472000	499071	Maintenance and Repair Workers, General	HVAC Certification

472000	131161	Market Research Analysts & Marketing Specialists	National Certified Compliance Officer (NCCO)
472000	499062	Medical Equipment Repairers	Biomedical Equipment Technician Certification (BMET)
472000	436013	Medical Secretaries	Certified Nursing Assistant (CNA)
472000	499044	Millwrights	Craftsman Certification
472000	151142	Network and Computer Systems Administrators	Cisco Certified Entry Network Tech (CCENT)
472000	311014	Nursing Aides, Orderlies, and Attendants	Certified Nursing Assistant (CNA)
472000	472073	Operating Engineers and Other Construction Equipment	Commercial Drivers License (CDL)
472000	433051	Payroll and Timekeeping Clerks	Certified Payroll Professional
472000	291051	Pharmacists	Certified Pharmacy Technician
472000	472151	Pipelayers	NCCER Plumbing Level One
472000	472152	Plumbers, Pipefitters, and Steamfitters	NCCER Plumbing Level One
472000	435061	Production, Planning, and Expediting Clerks	APICS Certification
472000	492098	Security and Fire Alarm Systems Installers	NCCER Electrical Level One
472000	211011	Substance Abuse and Behavioral Disorder Counselors	Licensed Clinical Social Worker (LCSW)
472000	492022	Telecommunications Equipment Installers and Repair	Cisco Certified Network Associate (CCNA)

### Regional Job Listings and Applications: Middle Region

Another form of gap analysis is to review the number and types of jobs being posted on the jobs4tn.gov website and the number of job seekers applying for those jobs. For November 2015, internally- posted occupations with more than four openings and applicants for those occupations are shown in the table following. Occupations listed as demand occupations in the previous “gap analysis” table have a “Yes” in the Job Match column.

Some of the occupations with more job openings than applicants and matching the regional gap analysis include services sales representatives; team assemblers; maintenance and repair workers, general; industrial machinery mechanics; inspectors and testers; heavy and tractor-trailer truck drivers; telecommunications installers; and computer user support specialists. A variety of computer occupations had job openings but require a bachelor’s degree or more education. Operating engineers and electricians have listings in construction.

## Regional Jobs Listing and Applications: Middle

Job Code	Job Title	Sum of Openings	Sum of Applications	Job Match to Gap Analysis	Openings Minus Applicants
353011	Bartenders	11	28	YES	-17
433031	Bookkeeping, Accounting, and Auditing Clerks	5	2	YES	3
353021	Combined Food Preparation and Serving Workers, Including Fast Food	51	22	YES	29
113021	Computer and Information Systems Managers	7	6	YES	1
151121	Computer Systems Analysts	15	5	YES	10
151151	Computer User Support Specialists	61	39	YES	22
352012	Cooks, Institution and Cafeteria	15	26	YES	-11
352014	Cooks, Restaurant	44	5	YES	39
151141	Database Administrators	8	8	YES	0
533031	Driver/Sales Workers	24	42	YES	-18
434061	Eligibility Interviewers, Government Programs	5	10	YES	-5
132051	Financial Analysts	5	0	YES	5
113031	Financial Managers, Branch or Department	5	1	YES	4
132099	Financial Specialists, All Other	6	3	YES	3
351012	First-Line Supervisors of Food Preparation and Serving Workers	7	0	YES	7
411011	First-Line Supervisors of Retail Sales Workers	7	42	YES	-35
352021	Food Preparation Workers	32	4	YES	28
533032	Heavy and Tractor-Trailer Truck Drivers	1382	16	YES	1366
499031	Home Appliance Repairers	6	1	YES	5
311011	Home Health Aides	67	27	YES	40
499041	Industrial Machinery Mechanics	7	2	YES	5
519061	Inspectors, Testers, Sorters, Samplers, and Weighers	277	62	YES	215
131081	Logisticians	11	8	YES	3
514041	Machinists	6	16	YES	-10
499071	Maintenance and Repair Workers, General	54	32	YES	22
499043	Maintenance Workers, Machinery	17	15	YES	2
131111	Management Analysts	16	6	YES	10
131161	Market Research Analysts and Marketing Specialists	14	6	YES	8
151142	Network and Computer Systems Administrators	12	1	YES	11
311014	Nursing Assistants	43	5	YES	38
472073	Operating Engineers and Other Construction Equipment Operators	5	0	YES	5
399021	Personal Care Aides	118	52	YES	66
291051	Pharmacists	7	3	YES	4
435061	Production, Planning, and Expediting Clerks	7	9	YES	-2
194099	Quality Control Analysts	6	7	YES	-1
413099	Sales Representatives, Services, All Other	35	14	YES	21
414012	Sales Representatives, Wholesale and Manufacturing, Except Technical and Scientific Products	18	6	YES	12
414011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	7	1	YES	6



436014	Secretaries and Administrative Assistants, Except Legal, Medical, and Executive	18	54	YES	-36
151132	Software Developers, Applications	16	1	YES	15
512092	Team Assemblers	657	232	YES	425
492022	Telecommunications Equipment Installers and Repairers, Except Line Installers	22	10	YES	12
131151	Training and Development Specialists	13	13	YES	0

## West Region Industries Creating the Most New Jobs and Job Gap Analysis

The table below lists the top 10 industries expected to create the most new jobs in the West Region, and the fastest-growing demand occupations in those industries. Occupations appearing more than once are expected to be important in more than one industry. In Administrative and Support Services, dispatchers, security and fire alarm installers, and machinery maintenance workers are fastest growing occupations in demand with employers. The Ambulatory Health Care industry is creating a need for more cardiovascular technicians and technologists, diagnostic medical sonographers, emergency medical technicians, and medical secretaries (although pay for this occupation is less than the state median wage).

In the Educational Services industry, jobs for clerical supervisors are growing more rapidly than average. The Hospital sector will need increasingly more computer support specialists as medical records are digitized. In the Professional, Scientific, and Technical Services industry, paralegals are a growing occupation; electricians are also in greater demand. The West Region is well known as a hub for distribution; the Warehousing and Storage industry will require more clerical supervisors and customer service representatives, among other occupations.

## Industries Creating the Most New Jobs and Demand Occupations

### West Region

West Industry Rank	Industry Code	Industry Title	Job Code	Job Title	2014 Employment	Projected 2022 Employment	Annual Average Growth	Median Wage	Education Level
1	561000	Administrative and Support Services	112022	Sales Managers	110	140	3.1	86439	BA
1	561000	Administrative and Support Services	113021	Computer and Information Systems Managers	190	250	3.6	114144	BA
1	561000	Administrative and Support Services	131111	Management Analysts	100	130	4.1	74130	BA
1	561000	Administrative and Support Services	131161	Market Research Analysts & Marketing Specialists	120	200	5.3	53284	BA
1	561000	Administrative and Support Services	151121	Computer Systems Analysts	320	480	5.1	81030	BA
1	561000	Administrative and Support Services	152031	Operations Research Analysts	40	60	5.7	66701	BA
1	561000	Administrative and Support Services	211092	Probation Officers and Correctional Treatment Spec	40	50	4	34983	BA
1	561000	Administrative and Support Services	412031	Retail Salespersons	620	850	3.9	21673	LHS

1	561000	Administrative and Support Services	435032	Dispatchers, Except Police, Fire, and Ambulance	150	200	3.5	38339	HS
1	561000	Administrative and Support Services	492098	Security and Fire Alarm Systems Installers	230	300	3.5	39367	HS
1	561000	Administrative and Support Services	499043	Maintenance Workers, Machinery	130	180	5	33902	HS
2	621000	Ambulatory Health Care Services	131161	Market Research Analysts & Marketing Specialists	80	120	4.7	53284	BA
2	621000	Ambulatory Health Care Services	211091	Health Educators	80	100	3.3	36933	BA
2	621000	Ambulatory Health Care Services	291061	Anesthesiologists	130	170	3.3	194710	PhD
2	621000	Ambulatory Health Care Services	291069	Physicians and Surgeons, All Other	1630	2110	3.3	194460	PhD
2	621000	Ambulatory Health Care Services	291126	Respiratory Therapists	40	50	3.3	46983	AS
2	621000	Ambulatory Health Care Services	292031	Cardiovascular Technologists and Technicians	50	80	5.5	48992	AS
2	621000	Ambulatory Health Care Services	292032	Diagnostic Medical Sonographers	140	200	4.2	56965	AS
2	621000	Ambulatory Health Care Services	292041	Emergency Medical Technicians and Paramedics	800	1130	4.4	34325	PS
2	621000	Ambulatory Health Care Services	311014	Nursing Aides, Orderlies, and Attendants	890	1150	3.3	22709	PS
2	621000	Ambulatory Health Care Services	319099	Healthcare Support Workers, All Other	20	30	4.5	39956	HS
2	621000	Ambulatory Health Care Services	435061	Production, Planning, and Expediting Clerks	40	50	4	44907	HS
2	621000	Ambulatory Health Care Services	436013	Medical Secretaries	940	1250	3.6	28158	HS
2	621000	Ambulatory Health Care Services	499062	Medical Equipment Repairers	40	50	4.3	43461	AS
2	621000	Ambulatory Health Care Services	533011	Ambulance Drivers and Attendants, Except Emergency	100	140	4.4	20045	HS
3	611000	Educational Services	151121	Computer Systems Analysts	40	50	2.6	81030	BA
3	611000	Educational Services	251011	Business Teachers, Postsecondary	470	560	2.2	73708	PhD
3	611000	Educational Services	251071	Health Specialties Teachers, Postsecondary	680	920	3.8	74338	PhD
3	611000	Educational Services	251126	Philosophy and Religion Teachers, Postsecondary	200	240	2.3	56176	PhD
3	611000	Educational Services	413099	Sales Representatives, Services, All Other	30	40	2.4	41797	HS
3	611000	Educational Services	431011	First-Line Supervisors of Office and Administrative and Support Workers	150	180	2.2	46566	HS
4	622000	Hospitals	113021	Computer and Information Systems Managers	90	130	4.6	114144	BA
4	622000	Hospitals	131041	Compliance Officers	40	50	3.3	58079	BA
4	622000	Hospitals	131161	Market Research Analysts & Marketing Specialists	40	60	3.7	53284	BA



4	622000	Hospitals	151121	Computer Systems Analysts	140	200	4.7	81030	BA
4	622000	Hospitals	151132	Software Developers, Applications	70	80	2.5	80238	BA
4	622000	Hospitals	151141	Database Administrators	60	80	4.8	81028	BA
4	622000	Hospitals	151142	Network and Computer Systems Administrators	90	120	4.5	72327	BA
4	622000	Hospitals	151151	Computer Support Specialists	80	120	4.3	44844	SC
4	622000	Hospitals	151152	Computer Network Support Specialists	40	50	3.7	65456	AS
4	622000	Hospitals	212011	Clergy	50	60	2.5	50121	BA
4	622000	Hospitals	291051	Pharmacists	570	730	3.2	125770	PhD
4	622000	Hospitals	292012	Medical and Clinical Laboratory Technicians	1220	1520	2.8	37603	AS
4	622000	Hospitals	292031	Cardiovascular Technologists and Technicians	270	350	3.4	48992	AS
4	622000	Hospitals	292032	Diagnostic Medical Sonographers	220	300	4.2	56965	AS
4	622000	Hospitals	292055	Surgical Technologists	450	590	3.3	37162	PS
4	622000	Hospitals	436013	Medical Secretaries	1120	1360	2.5	28158	HS
4	622000	Hospitals	499062	Medical Equipment Repairers	90	120	4.2	43461	AS
4	622000	Hospitals	518021	Stationary Engineers and Boiler Operators	70	90	2.4	54491	HS
5	541000	Professional, Scientific, and Technical Services	131041	Compliance Officers	50	80	6.6	58079	BA
5	541000	Professional, Scientific, and Technical Services	131081	Logisticians	50	80	6.7	58477	BA
5	541000	Professional, Scientific, and Technical Services	131111	Management Analysts	230	360	5.9	74130	BA
5	541000	Professional, Scientific, and Technical Services	131151	Training and Development Specialists	60	110	8.5	56367	BA
5	541000	Professional, Scientific, and Technical Services	232011	Paralegals and Legal Assistants	580	890	5.5	40287	AS
5	541000	Professional, Scientific, and Technical Services	273091	Interpreters and Translators	50	90	7.7	36225	BA
5	541000	Professional, Scientific, and Technical Services	292056	Veterinary Technologists and Technicians	390	600	5.5	28747	AS
5	541000	Professional, Scientific, and Technical Services	299011	Occupational Health and Safety Specialists	30	70	8.8	59974	BA
5	541000	Professional, Scientific, and Technical Services	435081	Stock Clerks and Order Fillers	60	110	6.9	24341	LHS
5	541000	Professional, Scientific, and Technical Services	472111	Electricians	60	120	10.2	47128	HS
5	541000	Professional, Scientific, and Technical Services	499041	Industrial Machinery Mechanics	40	100	12.1	52223	HS

5	541000	Professional, Scientific, and Technical Services	499071	Maintenance and Repair Workers, General	30	70	8.8	35591	HS
5	541000	Professional, Scientific, and Technical Services	511011	First-Line Supervisors of Production and Operating	50	80	5.6	50205	PS
5	541000	Professional, Scientific, and Technical Services	519061	Inspectors, Testers, Sorters, Samplers, and Weighers	260	390	5.5	30736	HS
5	541000	Professional, Scientific, and Technical Services	533032	Heavy and Tractor-Trailer Truck Drivers	40	70	9.8	40572	PS
6	813000	Religious, Grantmaking, Civic, Professional,	113031	Financial Managers	50	80	5.5	88573	BA
6	813000	Religious, Grantmaking, Civic, Professional,	131111	Management Analysts	70	90	3.5	74130	BA
6	813000	Religious, Grantmaking, Civic, Professional,	131121	Meeting, Convention, and Event Planners	310	440	4.5	40978	BA
6	813000	Religious, Grantmaking, Civic, Professional,	131131	Fundraisers	240	350	5.2	49516	BA
6	813000	Religious, Grantmaking, Civic, Professional,	131161	Market Research Analysts & Marketing Specialists	300	440	4.9	53284	BA
6	813000	Religious, Grantmaking, Civic, Professional,	151121	Computer Systems Analysts	30	50	5.3	81030	BA
6	813000	Religious, Grantmaking, Civic, Professional,	353011	Bartenders	100	210	9.1	17769	LHS
6	813000	Religious, Grantmaking, Civic, Professional,	399011	Childcare Workers	100	190	8.5	18087	HS
6	813000	Religious, Grantmaking, Civic, Professional,	411011	First-Line Supervisors of Retail Sales Workers	60	80	5	39053	HS
6	813000	Religious, Grantmaking, Civic, Professional,	412031	Retail Salespersons	230	340	5.1	21673	LHS
6	813000	Religious, Grantmaking, Civic, Professional,	413099	Sales Representatives, Services, All Other	40	60	5.4	41797	HS
6	813000	Religious, Grantmaking, Civic, Professional,	433031	Bookkeeping, Accounting, and Auditing Clerks	200	260	3.4	34545	HS
6	813000	Religious, Grantmaking, Civic, Professional,	499071	Maintenance and Repair Workers, General	30	50	4.8	35591	HS
7	493000	Warehousing and Storage	131081	Logisticians	40	60	6.3	58477	BA
7	493000	Warehousing and Storage	132011	Accountants and Auditors	40	50	4.8	59026	BA
7	493000	Warehousing and Storage	172112	Industrial Engineers	40	60	4.9	74407	BA
7	493000	Warehousing and Storage	431011	First-Line Supervisors of Office and Administrative and Support Workers	60	90	4.8	46566	HS
7	493000	Warehousing and Storage	434051	Customer Service Representatives	100	150	4.8	30906	HS
7	493000	Warehousing and Storage	435061	Production, Planning, and Expediting Clerks	200	290	4.8	44907	HS

7	493000	Warehousing and Storage	499071	Maintenance and Repair Workers, General	140	210	4.8	35591	HS
7	493000	Warehousing and Storage	511011	First-Line Supervisors of Production and Operating	70	100	4.8	50205	PS
7	493000	Warehousing and Storage	512092	Team Assemblers	40	60	4.8	29348	HS
7	493000	Warehousing and Storage	519061	Inspectors, Testers, Sorters, Samplers, and Weighers	570	820	4.8	30736	HS
7	493000	Warehousing and Storage	533032	Heavy and Tractor-Trailer Truck Drivers	190	280	4.8	40572	PS
7	493000	Warehousing and Storage	537121	Tank Car, Truck, and Ship Loaders	40	60	4.9	38396	LHS
8	551000	Management of Companies and Enterprises	131081	Logisticians	70	110	6.1	58477	BA
8	551000	Management of Companies and Enterprises	131161	Market Research Analysts & Marketing Specialists	80	120	5.9	53284	BA
8	551000	Management of Companies and Enterprises	132041	Credit Analysts	40	60	4.5	54972	BA
8	551000	Management of Companies and Enterprises	132051	Financial Analysts	80	130	5.4	64915	BA
8	551000	Management of Companies and Enterprises	132099	Financial Specialists, All Other	50	80	4.5	57988	BA
8	551000	Management of Companies and Enterprises	151121	Computer Systems Analysts	180	270	5.4	81030	BA
8	551000	Management of Companies and Enterprises	151133	Software Developers, Systems Software	70	90	4.5	85584	BA
8	551000	Management of Companies and Enterprises	152031	Operations Research Analysts	100	160	5.9	66701	BA
8	551000	Management of Companies and Enterprises	172112	Industrial Engineers	130	200	5.4	74407	BA
8	551000	Management of Companies and Enterprises	231011	Lawyers	60	100	5.4	92731	PhD
8	551000	Management of Companies and Enterprises	232011	Paralegals and Legal Assistants	40	60	5.2	40287	AS
8	551000	Management of Companies and Enterprises	292012	Medical and Clinical Laboratory Technicians	40	60	5	37603	AS
8	551000	Management of Companies and Enterprises	319094	Medical Transcriptionists	40	50	4.6	32117	PS
8	551000	Management of Companies and Enterprises	411012	First-Line Supervisors of Non-Retail Sales Workers	50	60	4.5	78687	HS
8	551000	Management of Companies and Enterprises	436014	Secretaries and Administrative Assistants, Except	190	280	4.6	29180	HS
8	551000	Management of Companies and Enterprises	511011	First-Line Supervisors of Production and Operating	40	50	4.6	50205	PS
9	624000	Social Assistance	211015	Rehabilitation Counselors	680	830	2.4	19236	MA

9	624000	Social Assistance	211022	Healthcare Social Workers	70	80	1.9	50121	MA
9	624000	Social Assistance	211094	Community Health Workers	160	190	2.8	32102	HS
9	624000	Social Assistance	252011	Preschool Teachers, Except Special Education	1340	1960	4.9	29374	AS
9	624000	Social Assistance	259041	Teacher Assistants	140	200	4.2	19865	SC
9	624000	Social Assistance	352012	Cooks, Institution and Cafeteria	160	220	4.5	20354	LHS
9	624000	Social Assistance	391021	First-Line Supervisors of Personal Service Workers	240	300	2.9	29575	HS
9	624000	Social Assistance	399011	Childcare Workers	2110	3030	4.6	18087	HS
9	624000	Social Assistance	399021	Personal Care Aides	2370	2690	1.6	18278	LHS
9	624000	Social Assistance	433031	Bookkeeping, Accounting, and Auditing Clerks	60	70	1.6	34545	HS
9	624000	Social Assistance	439061	Office Clerks, General	440	490	1.3	27685	HS
9	624000	Social Assistance	499071	Maintenance and Repair Workers, General	40	40	1.3	35591	HS
10	326000	Plastics and Rubber Products Manufacturing	172112	Industrial Engineers	40	80	7.2	\$74,407	BA
10	326000	Plastics and Rubber Products Manufacturing	194031	Chemical Technicians	50	90	8.2	\$42,030	AS
10	326000	Plastics and Rubber Products Manufacturing	434051	Customer Service Representatives	50	80	5.5	\$30,906	HS
10	326000	Plastics and Rubber Products Manufacturing	435071	Shipping, Receiving, and Traffic Clerks	130	200	5.5	\$31,101	HS
10	326000	Plastics and Rubber Products Manufacturing	499041	Industrial Machinery Mechanics	50	100	8.9	\$52,223	HS
10	326000	Plastics and Rubber Products Manufacturing	499043	Maintenance Workers, Machinery	60	110	7.2	\$33,902	HS
10	326000	Plastics and Rubber Products Manufacturing	499071	Maintenance and Repair Workers, General	90	140	5.7	\$35,591	HS
10	326000	Plastics and Rubber Products Manufacturing	511011	First-Line Supervisors of Production and Operating	110	180	6.5	\$50,205	PS
10	326000	Plastics and Rubber Products Manufacturing	512092	Team Assemblers	490	860	7.4	\$29,348	HS
10	326000	Plastics and Rubber Products Manufacturing	514041	Machinists	200	390	8.6	\$40,429	HS
10	326000	Plastics and Rubber Products Manufacturing	519061	Inspectors, Testers, Sorters, Samplers, and Weighers	140	270	8	\$30,736	HS

Education Level Codes
LHS Less than high school
HS High school diploma/equivalent
PS Postsecondary non-degree award
SC Some college
AS Associate's degree
BA Bachelor's degree
MA Master's degree
PhD Doctoral or professional degree

## Gap Analysis West Region: Targeting Jobs for Training

The 10 programs of study with the largest gap between projected annual openings and training completers are show in the first part of the table below. With expected annual average openings of more than 2,000 in the West Region and no specific training, the occupation of customer service representative would be expected to have unfilled openings. In the Selling and Sales Management program of study (POS), supervisors of wholesale sales workers and services sales representatives should have openings as well. In Administrative Support, medical transcriptionists and dispatchers have higher earnings and may have openings as well. A shortage of preschool teachers is expected as the occupation grows; average salaries are, however, below the median pay for the state.

In the Precision Production POS, there are expected shortages of team assemblers and machinists; in Production Operations and Maintenance, industrial machinery mechanics, machinery maintenance workers, and inspectors and testers (paid just below state median pay). Production, planning, and expediting clerks are needed to assist with Channel Management. The data continue to point to a shortage of heavy and tractor-trailer truck drivers as the economy continues to grow. The Accounting Administration POS shows bookkeepers and auditing clerks with some shortages of personnel. More trained electricians are needed in construction; medical laboratory technicians for the Medical and Clinical Laboratory POS. The training of computer support specialists requires only a two-year degree, and there should be job openings for these qualified individuals.

For occupations in the gap analysis table requiring less than a bachelor's degree, available licenses and certifications specified by employers appear in the table following.

West Region	Job Code	Job Title	POS Code	Program of Study Title	Ann Ave Openings	Completers	Gap	Median Wage	Ed Level
471000	434051	Customer Service Representatives	04.5000000	Communications Development	2220	154	2066	30,906.00	HS
471000	112022	Sales Managers	14.2000000	Selling and Sales Management	1670	0	1670	86,439.00	BA
471000	411011	First-Line Supervisors of Retail Sales Workers	14.2000000	Selling and Sales Management	1670	0	1670	39,053.00	HS
471000	411012	First-Line Supervisors of Non-Retail Sales Workers	14.2000000	Selling and Sales Management	1670	0	1670	78,687.00	HS
471000	412031	Retail Salespersons	14.2000000	Selling and Sales Management	1670	0	1670	21,673.00	LHS
471000	413099	Sales Representatives, Services, All Other	14.2000000	Selling and Sales Management	1670	0	1670	41,797.00	HS
471000	435071	Shipping, Receiving, and Traffic Clerks	14.3000000	Merchandising	1630	0	1630	31,101.00	HS
471000	435081	Stock Clerks and Order Fillers	14.3000000	Merchandising	1630	0	1630	24,341.00	LHS
471000	259041	Teacher Assistants	10.1000000	Early Childhood Development and Services Career Pathway	2400	819	1581	19,865.00	SC
471000	399011	Childcare Workers	10.1000000	Early Childhood Development and Services Career Pathway	2400	819	1581	18,087.00	HS
471000	352012	Cooks, Institution and Cafeteria	09.1000000	Restaurants and Food and Beverage Services Pathway	1560	348	1212	20,354.00	LHS
471000	353011	Bartenders	09.1000000	Restaurants and Food and Beverage Services Pathway	1560	348	1212	17,769.00	LHS
471000	319094	Medical Transcriptionists	04.6000000	Administrative and Information Support	1740	761	979	32,117.00	PS
471000	431011	First-Line Supervisors of Office and Administrative	04.6000000	Administrative and Information Support	1740	761	979	46,566.00	HS
471000	435032	Dispatchers, Except Police, Fire, and Ambulance	04.6000000	Administrative and Information Support	1740	761	979	38,339.00	HS
471000	436013	Medical Secretaries	04.6000000	Administrative and Information Support	1740	761	979	28,158.00	HS
471000	436014	Secretaries and Administrative Assistants, Except	04.6000000	Administrative and Information Support	1740	761	979	29,180.00	HS
471000	439061	Office Clerks, General	04.6000000	Administrative and Information Support	1740	761	979	27,685.00	HS
471000	113031	Financial Managers	06.3110000	Banking and Finance	1470	659	811	88,573.00	BA
471000	131131	Fundraisers	06.3110000	Banking and Finance	1470	659	811	49,516.00	BA
471000	131161	Market Research Analysts & Marketing Specialists	06.3110000	Banking and Finance	1470	659	811	53,284.00	BA
471000	132041	Credit Analysts	06.3110000	Banking and Finance	1470	659	811	54,972.00	BA
471000	132051	Financial Analysts	06.3110000	Banking and Finance	1470	659	811	64,915.00	BA
471000	132099	Financial Specialists, All Other	06.3110000	Banking and Finance	1470	659	811	57,988.00	BA
471000	251011	Business Teachers, Postsecondary	06.3110000	Banking and Finance	1470	659	811	73,708.00	PhD

471000	252011	Preschool Teachers, Except Special Education	05.2110000	Teacher Training Services- Pre-K-Early Childhood Education	950	242	708	29,374.00	AS
471000	511011	First-Line Supervisors of Production and Operating Team Assemblers	13.1000000	Precision Production Pathway	730	209	521	50,205.00	PS
471000	512092	Team Assemblers	13.1000000	Precision Production Pathway	730	209	521	29,348.00	HS
471000	514041	Machinists	13.1000000	Precision Production Pathway	730	209	521	40,429.00	HS
471000	518021	Stationary Engineers and Boiler Operators	13.1000000	Precision Production Pathway	730	209	521	54,491.00	HS
471000	533011	Ambulance Drivers and Attendants, Except Emergency	16.1300000	Truck, Bus, Rail, Water Transportation, and Heavy Equipment	540	78	462	20,045.00	HS
471000	533032	Heavy and Tractor-Trailer Truck Drivers	16.1300000	Truck, Bus, Rail, Water Transportation, and Heavy Equipment	540	78	462	40,572.00	PS
471000	537121	Tank Car, Truck, and Ship Loaders	16.1300000	Truck, Bus, Rail, Water Transportation, and Heavy Equipment	540	78	462	38,396.00	LHS
471000	499041	Industrial Machinery Mechanics	13.2200000	Prod. Design, Ops, and Maint. Path -- Operations & Maint.	660	218	442	52,223.00	HS
471000	499043	Maintenance Workers, Machinery	13.2200000	Prod. Design, Ops, and Maint. Path -- Operations & Maint.	660	218	442	33,902.00	HS
471000	499062	Medical Equipment Repairers	13.2200000	Prod. Design, Ops, and Maint. Path -- Operations & Maint.	660	218	442	43,461.00	AS
471000	499071	Maintenance and Repair Workers, General	13.2200000	Prod. Design, Ops, and Maint. Path -- Operations & Maint.	660	218	442	35,591.00	HS
471000	519061	Inspectors, Testers, Sorters, Samplers, and Weighers	13.2200000	Prod. Design, Ops, and Maint. Path -- Operations & Maint.	660	218	442	30,736.00	HS
471000	311014	Nursing Aides, Orderlies, and Attendants	08.4160000	Nursing Assistants and Home Health	320	16	304	22,709.00	PS
471000	319099	Healthcare Support Workers, All Other	08.4160000	Nursing Assistants and Home Health	320	16	304	39,956.00	HS
471000	433031	Bookkeeping, Accounting, and Auditing Clerks	04.2120000	Accounting Administrative Support	310	84	226	34,545.00	HS
471000	212011	Clergy	10.3120000	Religion	710	492	218	50,121.00	BA
471000	251126	Philosophy and Religion Teachers, Postsecondary	10.3120000	Religion	710	492	218	56,176.00	PhD
471000	172112	Industrial Engineers	15.1160000	Industrial Engineering	280	75	205	74,407.00	BA
471000	131111	Management Analysts	04.4000000	Business Analysis	200	0	200	74,130.00	BA
471000	131161	Market Research Analysts & Marketing Specialists	04.4000000	Business Analysis	200	0	200	53,284.00	BA
471000	152031	Operations Research Analysts	04.4000000	Business Analysis	200	0	200	66,701.00	BA
471000	435061	Production, Planning, and Expediting Clerks	14.6000000	Channel Management	180	0	180	44,907.00	HS



471000	131161	Market Research Analysts & Marketing Specialists	14.5000000	Marketing Research	150	0	150	53,284.00	BA
471000	131121	Meeting, Convention, and Event Planners	09.2000000	Lodging Pathway	170	39	131	40,978.00	BA
471000	391021	First-Line Supervisors of Personal Service Workers	09.2000000	Lodging Pathway	170	39	131	29,575.00	HS
471000	131151	Training and Development Specialists	04.3000000	Human Resources	140	35	105	56,367.00	BA
471000	399021	Personal Care Aides	10.4130000	Personal and Home Care	100	0	100	18,278.00	LHS
471000	472111	Electricians	02.2100000	Construction Pathway - Construction Electrical	140	54	86	47,128.00	HS
471000	492098	Security and Fire Alarm Systems Installers	02.2100000	Construction Pathway - Construction Electrical	140	54	86	39,367.00	HS
471000	292012	Medical and Clinical Laboratory Technicians	08.2220000	Medical and Clinical Laboratory Technicians	120	42	78	37,603.00	AS
471000	292056	Veterinary Technologists and Technicians	01.3120000	Veterinary Technology	70	10	60	28,747.00	AS
471000	291061	Anesthesiologists	08.1260000	Physicians and Surgeons	620	564	56	194,710.00	PhD
471000	291069	Physicians and Surgeons, All Other	08.1260000	Physicians and Surgeons	620	564	56	194,460.00	PhD
471000	292041	Emergency Medical Technicians and Paramedics	08.1190000	Emergency Medical Tech.	110	54	56	34,325.00	PS
471000	131041	Compliance Officers	07.7120000	Compliance Officers	40	0	40	58,079.00	BA
471000	251071	Health Specialties Teachers, Postsecondary	08.1390000	Health Specialties Teachers, Postsecondary	40	0	40	74,338.00	PhD
471000	299011	Occupational Health and Safety Specialists	08.4130000	Industrial Hygiene	40	0	40	59,974.00	BA
471000	273091	Interpreters and Translators	05.1130000	Support Services- Interpreters/Translators	50	20	30	36,225.00	BA
471000	232011	Paralegals and Legal Assistants	12.4110000	Legal Assisting	70	46	24	40,287.00	AS
471000	194031	Chemical Technicians	15.1310000	Chemical Technology	20	0	20	42,030.00	AS
471000	292031	Cardiovascular Technologists and Technicians	08.2230000	Cardiovascular Technologists and Technicians	20	0	20	48,992.00	AS
471000	292032	Diagnostic Medical Sonographers	08.2110000	Ultrasonic Technician	20	8	12	56,965.00	AS
471000	211091	Health Educators	08.4120000	Health Education	20	15	5	36,933.00	BA
471000	211094	Community Health Workers	08.4120000	Health Education	20	15	5	32,102.00	HS
471000	292055	Surgical Technologists	08.1180000	Surgical Technologist	40	45	-5	37,162.00	PS
471000	151142	Network and Computer Systems Administrators	11.1000000	Network Systems	90	97	-7	72,327.00	BA
471000	151152	Computer Network Support Specialists	11.1000000	Network Systems	90	97	-7	65,456.00	AS
471000	291126	Respiratory Therapists	08.1220000	Respiratory Therapy	40	49	-9	46,983.00	AS



471000	113021	Computer and Information Systems Managers	11.3400000	Web/Multimedia Management, Programming	1150	1162	-12	114,144.00	BA
471000	151121	Computer Systems Analysts	11.3400000	Web/Multimedia Management, Programming	1150	1162	-12	81,030.00	BA
471000	151132	Software Developers, Applications	11.3400000	Web/Multimedia Management, Programming	1150	1162	-12	80,238.00	BA
471000	151133	Software Developers, Systems Software	11.3400000	Web/Multimedia Management, Programming	1150	1162	-12	85,584.00	BA
471000	151141	Database Administrators	11.3400000	Web/Multimedia Management, Programming	1150	1162	-12	81,028.00	BA
471000	151151	Computer Support Specialists	11.3400000	Web/Multimedia Management, Programming	1150	1162	-12	44,844.00	SC
471000	211022	Healthcare Social Workers	10.3110000	Social Work	420	433	-13	50,121.00	MA
471000	211092	Probation Officers and Correctional Treatment Spec	10.3110000	Social Work	420	433	-13	34,983.00	BA
471000	131081	Logisticians	16.1200000	Transportation Operations Pathway - Transportation Systems	20	34	-14	58,477.00	BA
471000	291051	Pharmacists	08.1330000	Pharmacists	370	405	-35	125,770.00	PhD
471000	231011	Lawyers	12.4120000	Law	480	609	-129	92,731.00	PhD
471000	132011	Accountants and Auditors	04.2110000	Accounting	1100	1294	-194	59,026.00	BA
471000	211015	Rehabilitation Counselors	10.2130000	Human Services	570	856	-286	19,236.00	MA

## Licensing and Certification: West

West Region	Job Code	Job Title	Certification
471000	433031	Bookkeeping, Accounting, and Auditing Clerks	Certified Public Accountant (CPA)
471000	251011	Business Teachers, Postsecondary	National Certified Compliance Officer (NCCO)
471000	292031	Cardiovascular Technologists and Technicians	Certified Cardiovascular Technician
471000	151152	Computer Network Support Specialists	CCNA Cisco Certified Network Associate
471000	151151	Computer Support Specialists	Network+ Certification
471000	132041	Credit Analysts	National Certified Compliance Officer (NCCO)
471000	472111	Electricians	NCCER Electrical Level One
471000	292041	Emergency Medical Technicians and Paramedics	Emergency Medical Responder (First Responder)
471000	132051	Financial Analysts	National Certified Compliance Officer (NCCO)
471000	113031	Financial Managers	National Certified Compliance Officer (NCCO)
471000	132099	Financial Specialists, All Other	National Certified Compliance Officer (NCCO)
471000	131131	Fundraisers	National Certified Compliance Officer (NCCO)
471000	533032	Heavy and Tractor-Trailer Truck Drivers	Commercial Drivers License (CDL)
471000	519061	Inspectors, Testers, Sorters, Samplers, and Weighers	Certified Quality Inspector
471000	499071	Maintenance and Repair Workers, General	HVAC Certification
471000	292012	Medical and Clinical Laboratory Technicians	Certified Clinical Hemodialysis Technician (CCHT)
471000	499062	Medical Equipment Repairers	Biomedical Equipment Technician Certification (BMET)

471000	436013	Medical Secretaries	Certified Nursing Assistant (CNA)
471000	319094	Medical Transcriptionists	Basic Life Support (BLS) Certification
471000	151142	Network and Computer Systems Administrators	CCNA Cisco Certified Network Associate
471000	311014	Nursing Aides, Orderlies, and Attendants	Certified Nursing Assistant (CAN
471000	435061	Production, Planning, and Expediting Clerks	APICS Certification
471000	291126	Respiratory Therapists	Registered Respiratory Therapist
471000	492098	Security and Fire Alarm Systems Installers	NCCER Electrical Level One
471000	292055	Surgical Technologists	Certified Surgical Technologist
471000	259041	Teacher Assistants	CDA- Child Development Associate

## Regional Job Listings and Applications: West Region

Regional job listings for November, 2015 confirm shortages for the occupation of computer user support specialists, as well as heavy and tractor-trailer truck drivers, inspectors and testers, and machinists. There appeared to be adequate applicants for customer service representative positions.

In the Selling and Sales Management occupations, there were jobs for retail sales managers, services sales, and wholesale sales representatives. Operations and Maintenance jobs listed included general and machinery maintenance workers. With hospitals and ambulatory health care industries among the top ten industries, there are quite a few openings for licensed practical and registered nurses. These are not among the fastest growing occupations in these industries, but among the largest in terms of available jobs. The table below lists the job openings (greater than 4) and applicants for November, 2015.

## Regional Jobs Listing and Applications: West

Job Code	Job Title	Sum of Openings	Sum of Applications	Job Match to Gap Analysis	Openings Minus Applicants
13201 1	Accountants	35	16	YES	19
13201 1	Auditors	5	5	YES	0
43303 1	Bookkeeping, Accounting, and Auditing Clerks	10	18	YES	-8
39901 1	Childcare Workers	10	4	YES	6
15112 1	Computer Systems Analysts	11	0	YES	11
15115 1	Computer User Support Specialists	30	7	YES	23
43405 1	Customer Service Representatives	54	97	YES	-43
11303 1	Financial Managers, Branch or Department	5	3	YES	2
43101 1	First-Line Supervisors of Office and Administrative Support Workers	40	51	YES	-11
51101 1	First-Line Supervisors of Production and Operating Workers	188	28	YES	160
41101 1	First-Line Supervisors of Retail Sales Workers	22	10	YES	12
53303 2	Heavy and Tractor-Trailer Truck Drivers	1096	11	YES	1085

17211 2	Industrial Engineers	23	17	YES	6
51906 1	Inspectors, Testers, Sorters, Samplers, and Weighers	27	20	YES	7
51404 1	Machinists	15	6	YES	9
49907 1	Maintenance and Repair Workers, General	26	25	YES	1
49904 3	Maintenance Workers, Machinery	13	14	YES	-1
13111 1	Management Analysts	24	13	YES	11
13116 1	Market Research Analysts and Marketing Specialists	42	5	YES	37
29201 2	Medical and Clinical Laboratory Technicians	5	6	YES	-1
15203 1	Operations Research Analysts	12	6	YES	6
39902 1	Personal Care Aides	6	3	YES	3
29105 1	Pharmacists	5	0	YES	5
41203 1	Retail Salespersons	94	36	YES	58
41309 9	Sales Representatives, Services, All Other	21	30	YES	-9
43507 1	Shipping, Receiving, and Traffic Clerks	19	15	YES	4
15113 2	Software Developers, Applications	23	4	YES	19
43508 1	Stock Clerks- Stockroom, Warehouse, or Storage Yard	582	177	YES	405
13115 1	Training and Development Specialists	12	4	YES	8

## Employer Skill and Knowledge Requirements for Tennessee

### Skills

Skill and knowledge requirements for projected jobs through 2022 were developed by utilizing criteria in the online database O\*Net matched with Tennessee employment projections through 2022. Requirements are not yet available for each region of the state. The current top five skills employers are expected to require include active listening at 560,355 projected employment, speaking (615,215), reading comprehension (358,712), critical thinking (221,946), and social perceptiveness (179,595).

The need for active listening, speaking, and social perceptiveness are a must in the current workforce as newly graduating students seem to lack the necessary soft skills for workplace success. The ability to communicate effectively while glean necessary information for assigned tasks has become more crucial as the skills gap widens. The state educational focus on improvement in reading comprehension is validated by its high ranking as a vital employment skill.

Additionally, critical thinking is necessary to work through issues that may arise in the process of accomplishing job tasks. Many employers are actively seeking employees with higher level thinking skills due to the rapidly changing nature of their respective industries and to aid in adaptation and problem solving.

### Knowledge

The most required knowledge categories include customer and personal service (very important in 1,058,740 projected jobs), English language (513,599), clerical (255,745), administration and management with projected employment of 184,773, and education and training (161,010). Other high-ranking categories include sales and marketing, medicine and dentistry, and mechanical. Clerical knowledge is an apparent must in the current workforce. Communication, critical thinking, and reading comprehension are essential skills for clerical duties. Administrative management requires critical thinking, effective communication, active listening, and active learning and teaching skills. With such a large portion of baby boomers leaving the work force the need to fill administrative level jobs has increased.

As computers take over more routine jobs, employees increasingly find that customer service is essential knowledge in today's workplace. Reading, writing, and speaking English effectively aids in building customer relationships. With changing technology and economic trends, participating in and developing education and training opportunities are vital for knowledge sharing and retention at work.

### Required Skills

Category	Projected Year Employment	Openings Due to Growth	Replacements
Active Listening	620,506	19,396	11,748
Speaking	615,215	20,001	11,490
Reading Comprehension	358,712	11,393	6,465
Critical Thinking	221,946	7,597	4,204
Social Perceptiveness	179,595	6,177	3,754
Writing	158,014	4,812	2,393
Instructing	131,842	4,760	2,352
Judgment and Decision Making	107,716	3,665	1,958
Learning Strategies	101,372	3,827	1,888
Monitoring	98,442	3,207	2,174
Coordination	96,305	3,395	2,089
Service Orientation	77,803	2,597	1,498
Operation and Control	76,425	2,166	1,215
Persuasion	60,317	1,935	1,109
Complex Problem Solving	57,231	2,064	1,187
Time Management	52,750	1,834	1,109
Management of Personnel Resources	51,768	1,523	1,130
Negotiation	29,601	1,088	515
Active Learning	28,738	776	450
Operation Monitoring	25,246	997	656
Repairing	24,192	904	561
Troubleshooting	14,600	536	343
Systems Evaluation	12,571	355	250

Equipment Maintenance	12,166	500	295
Systems Analysis	10,887	283	220
Management of Financial Resources	10,794	279	218
Mathematics	10,412	394	206
Operations Analysis	1,133	38	26
Installation	1,093	30	16
Quality Control Analysis	777	25	22
Programming	571	29	11
Equipment Selection	59	2	1

**Source: Tennessee Statewide Employment Projections 2014 to 2022, total projected jobs.**  
**Skill and knowledge categories are from O\*Net characteristics matched to the Tennessee Projections.**

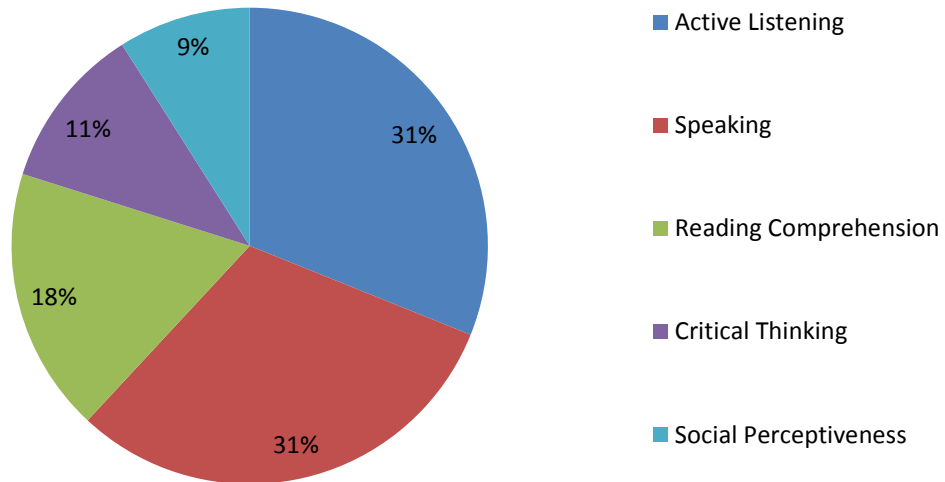
#### Required Knowledge

Category	Projected Year Employment	Openings Due to Growth	Replacements
Customer and Personal Service	1,058,740	39,640	28,420
English Language	513,599	16,483	9,097
Clerical	255,745	6,714	3,796
Administration and Management	184,773	5,437	3,413
Education and Training	161,010	5,655	2,963
Sales and Marketing	127,360	3,101	2,462
Medicine and Dentistry	121,705	4,675	2,286
Mechanical	119,010	3,710	2,565
Psychology	118,421	4,169	2,258
Building and Construction	98,169	2,715	1,592
Economics and Accounting	73,786	2,469	1,616
Mathematics	71,596	2,421	1,520
Personnel and Human Resources	67,418	1,926	1,165
Public Safety and Security	63,813	2,333	1,625
Engineering and Technology	58,822	1,742	1,192
Law and Government	57,948	2,184	1,189
Production and Processing	56,079	1,430	1,170
Computers and Electronics	47,599	1,395	897
Therapy and Counseling	44,684	1,408	832
Transportation	40,045	1,399	862
Design	39,176	1,195	816
Biology	33,513	1,270	627
Communications and Media	24,900	767	507
Sociology and Anthropology	16,152	490	282
Chemistry	15,481	562	363
Fine Arts	14,739	526	320
Telecommunications	10,855	355	178
Food Production	5,549	141	132

Geography	2,296	83	36
Philosophy and Theology	2,205	51	31
Foreign Language	2,004	69	21
History and Archeology	1,989	49	30

Source: Tennessee Statewide Employment Projections 2014 to 2022, total projected jobs.  
Skill and knowledge categories are from O\*Net characteristics matched to the Tennessee Projections.

## Top 5 Skills



## Required Knowledge

